Public Service Commission of Wisconsin

Lon Roberts, Chairperson
Mike Huebsch, Commissioner

610 North Whitney Way
P.O. Box 7854
Madison, WI 53707-7854

March 22, 2018

To the Parties:

Re: Quadrennial Planning Process III 5-FE-101

Comments Due:	Address Comments To:
Friday, April 13, 2018 – 12:00 noon	**Sandra Paske** Public Service Commission P.O. Box 7854 Madison, WI 53707-7854
This docket uses the Electronic Records Filing system (ERF).	

The Commission draft memorandum concerning the Quadrennial Planning Process III is being provided to the parties for comment. Comments must be received by 12:00 noon on Friday, April 13, 2018.

The Commission requests comments on the draft memorandum on the Quadrennial Planning Process III. Any utilities, organizations, or interest groups shall file comments using the Commission's Electronic Records Filing (ERF) system. The ERF system can be accessed through the Public Service Commission's web site at http://psc.wi.gov. Any members of the general public shall file only one comment either through the Commission's web site or by U.S. mail as follows:

- **Web Comment.** Go to the Commission's web site at http://psc.wi.gov, click on "File a Comment" button. On the next page select the "File a comment" link that appears for docket number 5-FE-101. Web comments shall be received no later than Friday, April 13, 2018, at noon.

- **Mail Comment.** All comments submitted by U.S. mail shall be received no later than Friday, April 13, 2018. Comments submitted by U.S. mail shall include the phrase "Docket 5-FE-101 Comments" in the heading, and shall be addressed to:

  Docket 5-FE-101 Comments
  Public Service Commission of Wisconsin
  P.O. Box 7854
  Madison, WI 53707-7854

The Commission will not accept comments submitted via email or facsimile (fax).

Any material submitted to the Commission is a public record and may appear on the Commission web site. Only one comment may be submitted per person during a comment period.

Please direct questions about this docket or requests for additional accommodations for the disabled to the Commission's docket coordinator, Jolene Sheil, at (608) 266-7375 or Jolene.Sheil@wisconsin.gov.

Sincerely,

Sandra J. Paske
Secretary to the Commission

SJP:JS:jlt:DL: 01624011

Attachment

PUBLIC SERVICE COMMISSION OF WISCONSIN

Memorandum

March 22, 2018

FOR COMMISSION AGENDA

TO: The Commission

FROM: Kristy Nieto, Deputy Administrator
Maria Redmond, Director, Office of Energy Innovation
Jolene Sheil, Portfolio Manager, Focus on Energy
Joe Fontaine, Performance Manager, Focus on Energy
Kabeed Mansur, Technical Analyst, Focus on Energy
Division of Business and Program Management

RE: Quadrennial Planning Process III 5-FE-101

Suggested Minute: The Commission directed the Division of Business and Program Management to draft an Order consistent with its discussion.

Quadrennial Planning Process

The Commission is statutorily obligated to oversee Wisconsin's statewide energy efficiency and renewable resource programs, known as Focus on Energy (Focus). Wis. Stat. § 196.374(3)(a). The Commission has overseen Focus since 2007. Under Wis. Stat. § 196.374(3)(b)1., the Commission is required to evaluate and set goals for the Focus programs as part of a Quadrennial Planning Process, among other statutorily identified tasks:

> At least every 4 years, after notice and opportunity to be heard, the commission shall, by order, evaluate the energy efficiency and renewable resource programs under sub. (2) (a) 1., (b) 1. and 2., and (c) and ordered programs and set or revise goals, priorities and measurable targets for the programs. The commission shall give priority to programs that moderate the growth in electric and natural gas demand and usage, facilitate markets and assist market providers to achieve higher

> levels of energy efficiency, promote energy reliability and adequacy, avoid adverse environmental impacts from the use of energy, and promote rural economic development.

In conjunction with the Commission's obligations to continually evaluate the Focus programs, Wis. Stat. § 196.374(5m)(b) requires that the Commission ensure "that customers throughout the state have an equivalent opportunity to receive the benefits of" statewide energy efficiency and renewable resource programs. Wisconsin Stat. § 196.374(2)(a)2. identifies specific components that must be included in the Focus programs.

The Commission's decisions in the first Quadrennial Planning Process (PSC REF#: 141173) covered the 2011-2014 period for management of the Focus program. The decisions in the Quadrennial Planning Process II (PSC REF#: 215245) are in effect for the 2015-2018 period. The decisions to be made in the Quadrennial Planning Process III will be in effect for the 2019-2022 period.

Background

On March 24, 2016, the Public Service Commission of Wisconsin (Commission) issued a Notice of Investigation in this docket to evaluate the Focus program, and to determine its appropriate goals, priorities, and measureable targets. (PSC REF#: 283596.) In the Notice of Investigation, the Commission indicated that it would follow a process similar to the one used in the Quadrennial Planning Process II docket; however, it opened this docket earlier than the previous Quadrennial Planning Process in order to provide sufficient time to determine whether to conduct an energy efficiency potential study. Two organizations, Citizens Utility Board of Wisconsin and the Wisconsin Paper Council, requested intervention in this docket. (PSC REF#: 284108, PSC REF#: 284291, respectively.)

In its memorandum dated September 11, 2017, Commission staff sought comments on the appropriate scope of the Quadrennial Planning Process III. (PSC REF#: 330795.) The

Commission received comments from six organizations on the scope of Quadrennial Planning III: We Energies (PSC REF#: 331815); Clean Wisconsin (PSC REF#: 331811); Wisconsin Industrial Energy Group (PSC REF#: 331812); RENEW Wisconsin (PSC REF#: 331816); American Council for an Energy-Efficient Economy (PSC REF#: 331817); and APTIM (the current Focus Program Administrator) (PSC REF#: 331813).

The Commission issued an Order on November 6, 2017, establishing the Scope of the Quadrennial Planning Process III. (PSC REF#: 333103.) The Commission found it reasonable to include the following categories and specific sub-issues in the Quadrennial Planning Process III scope:

I. Priorities

A. Emphasis between Energy and Demand

B. Emphasis of Business versus Residential

C. Balance Between Resource Acquisition and Market Transformation

II. Cost-Effectiveness of Programs

A. Cost-Effectiveness Test

B. Avoided Costs

C. Discount Rate

D. Value of Carbon

III. Programs Requiring Funding Allocation Decisions

A. Renewable Energy Priorities and Funding

B. Continued Review/Assessment of Anaerobic Digester Program

C. Inclusion of Underserved Rural Areas

IV. Focus-Utility Collaboration Issues: Behavioral Programs, Accessibility of Data, and Utility Voluntary Programs

A. General Framework for Focus and Utility Collaboration

B. Behavioral Programs

C. Accessibility of Data from Participating Utilities

D. Utility Voluntary Programs

V. Issues Related to Energy Goals

Because setting and achieving the overall energy goals is largely dependent on decisions in the first four sections, this memorandum will only address two issues related to how energy goals are defined. A separate memorandum will summarize the decisions and include a decision matrix as to how these decisions will impact the goal setting process. This will occur shortly after the Commission has made determinations on the issues in this memorandum.

I. PRIORITIES

A. Emphasis between Energy and Demand

In the two previous Quadrennial Planning Processes, the Commission found it reasonable to establish Focus goals based on reductions in energy use (kilowatt-hours (kWh) and therms) and peak demand,[1] with more emphasis on energy use savings. This decision to emphasize energy usage was informed by the emphasis on usage in the statutory definition of energy efficiency programs applied to Focus programs:

> "Energy efficiency program" means a program for reducing the usage or increasing the efficiency of the usage of energy by a customer or member of an energy utility, municipal utility, or retail electric cooperative. "Energy efficiency program" does not include load management. (Wis. Stat. 196.374(1)(d).)

The Commission also recognized that reductions in energy usage result in environmental benefits through emissions reductions. (PSC REF#: 215245.) Reducing energy use to achieve environmental benefits is consistent with Wis. Stat. § 196.374(2)(a)2., which provides that the purpose of the Focus program is to "help achieve environmentally sound and adequate energy supplies at reasonable cost." However, while the Commission has placed greater emphasis on energy savings, it has also recognized that reducing demand has systems benefits for utility

[1] For purposes of measuring Focus demand savings, peak periods are defined as 1 to 4 p.m. on weekdays in June, July, and August. This definition was set based on reviews of system usage conducted when the program was developed in the early 2000s. In 2015, the Evaluation Work Group reviewed updated system load shapes collected for other evaluation purposes and concluded that the definition remained appropriate.

customers. This balance is reflected in the bonus structure of the Program Administrator's contract, which provides bonuses for both types of savings, but includes greater bonuses for energy savings (40 percent kWh, 40 percent therms and 20 percent kW.)[2]

The emphasis on kWh versus kilowatt (kW) has had an influence in the current quadrennium where there has been a divergence between kWh and kW goals. In the current quadrennium, kW savings have lagged kWh savings in part due to the relative emphasis on kWh, but another factor is the influence of the life cycle framework. When the quadrennial goals were set, there was an implicit Effective Useful Life (EUL) relating annual savings to life cycle savings. On the electric side, this implicit EUL was about 11 years. If the average EUL of all electric measures in the portfolio were 11 years, it should track both annual and life cycle targets evenly. However, beginning in the first year of this quadrennium (2015), the actual average EUL of all electric measures was about 13 years. In other words, life cycle targets were achieved with longer lifetimes and therefore smaller annual savings—both kWh and kW. This occurred in part because the life cycle framework encouraged the Program Administrator to push for longer-lived measures, which reduced the amount of annual kWh savings necessary to meet the goal, and annual kW reductions as well.

The relative emphasis between energy and demand savings has important ramifications for determining which energy efficiency programs and technologies Focus offers. For example, a program focused on peak kW reductions would not actively promote outdoor lighting as these technologies save kWh, but result in few kW reductions. These effects on program offerings can also affect the mix of services available to different types of customers. For example, while Wis. Stat. § 196.374(2)(a)(2)b., requires that 10 percent of Focus program funds are spent on schools and local governments, an emphasis on peak demand reduction would provide limited

[2] PSC REF#: 226701, SEERA-APTIM 2015-2018 Contract, p. D-8.

opportunities to serve schools since schools are typically not fully utilized during the majority of the peak season. Additionally, most residential programs have low demand savings opportunities compared to business programs because many residents are not typically in their homes during peak hours.

From the perspective of the Midcontinent Independent System Operator, Inc.'s (MISO), 2016 and 2020 load zone analysis and the 7-year analysis carried out in the 2016 Strategic Energy Assessment (SEA), there will be resource adequacy for Wisconsin for the planning period 2016 through 2022.[3] However, the 2016 SEA also mentioned that due to Dominion's 2013 decision to close the 556 megawatt (MW) Kewaunee nuclear plant and the pending retirements of several smaller and older coal facilities, electricity providers expect a combined need for an additional 200–700 MW of capacity and energy by 2020.[4]

Commission Alternatives – Energy and Demand

Alternative One would establish both energy and demand goals, with a greater emphasis on energy savings and resulting emission reductions. This alternative would continue the approach used during the current quadrennium, and would likely continue Focus' current outcomes of achieving greater energy savings than reductions in demand.

Alternative Two would provide for equal importance to be given to energy and demand. This alternative would seek to enhance Focus' effects on limiting the costs to the state from increasing future capacity. Alternative Two may reduce energy savings and environmental benefits, and could make it more difficult for the program to maintain service equity for residential customers and schools. A shift to a greater emphasis on demand could also require

[3] Public Service Commission, *Final Strategic Energy Assessment 2022*, Docket 5-ES-108 at 21 (PSC REF#: 289792).
[4] *Id*. at 20.

substantial redesign of Focus programs. Redesign work could result in short-term increases in program administration costs and reductions in program offerings during 2019, until the transition is complete.

Alternative One: Continue to establish Focus goals based on reductions in energy use and peak demand, with more emphasis on energy use savings and resulting emission reductions.

Alternative Two: Establish Focus goals with an equal emphasis on energy and demand savings.

B. Emphasis of Business versus Residential

Wisconsin Stat. §196.374(5m)(a) states that, "The commission shall ensure that, on an annual basis, each customer class of an energy utility has the opportunity to receive grants and benefits under energy efficiency programs in an amount equal to the amount that is recovered from the customer class." Currently, funding for Focus programs is allocated with approximately 60 percent for business customer classes and 40 percent for residential customers, which is consistent with the historical proportion of Focus funding collected from each type of customer, based on their share of energy use. In the 2018 Focus core budget, this translates to approximately $56 million for Business Programs and $36 million for Residential programs. While this reflects what customers pay in, the remaining question is how this aligns with savings opportunities between classes.

Goals for the second quadrennium were set based on past potential studies (2005 and 2009), while also taking into account past program achievement and a review of new opportunities and technologies within each sector. In its Final Decision in the 2014 Quadrennial Planning Process, served on September 4, 2014, the Commission found it "reasonable to continue to allocate funding *approximately* proportional to the way in which the Focus funds are collected, recognizing: (1) the proportion of funding coming from each class might change relative to

another, and (2) it is difficult to allocate and spend in the exact proportion of funds collected in any one area and that a margin of error should be built in." (Emphasis in original.) (PSC REF#: 215245.)

At the beginning of each program year, the Program Administrator sets portfolio budgets for Business at 60 percent and Residential at 40 percent. As Table 1 indicates, however, this may change over the course of the program year based on program demand. Using implementer forecasts, the Program Administrator assesses budget balances and program demand going into the last quarter, and makes adjustments as needed. Programs that have high demand can receive additional funds from programs that are forecasting a surplus budget at the end of the year. As Table 1 also indicates, verified energy savings, kW reductions, and therm savings do not always mirror the expenditure percentages. For example, in 2013, residential expenditures at 43 percent of total expenditures, closely mirrored kWh savings at 45 percent, but not kW at 38 percent or therms at 21 percent. In 2015, while the business programs accounted for 63 percent of total expenditures, it accounted for 75 percent of kWh savings, 68 percent of kW savings, and 82 percent of therm savings. In large part, the business programs bring in a larger percentage of savings due to economies of scale with larger projects, particularly on the therm side. However, the residential sector is cost effective as shown in Table 1.

Table 1 Business and Residential Expenditures and Energy Savings 2013-2016

	% of Total Expenditures	% of Total kWh	% of Total kW	% of Total Therms	B/C Ratio
2013 Business	57	55	62	79	3.51
2013 Residential	43	45	38	21	3.22
2014 Business	57	67	59	74	3.54
2014 Residential	43	33	41	26	2.88
2015 Business	63	75	68	82	3.63
2015 Residential	37	25	32	16	3.12
2016 Business	64	66	67	78	3.13
2016 Residential	36	34	33	22	2.75

The *Focus on Energy 2016 Energy Efficiency Potential Study* assessed future energy savings potential for the business and residential sectors and found savings potential generally consistent with existing allocations. Under the Business as Usual (BAU) Achievable Potential scenario, which assumed the same funding levels and policies currently in place, 66 percent of available electric savings came from the business sector and 34 percent from the residential sector (single-family homes and multifamily). The share of business natural gas savings potential accounted for 62 percent of total BAU Achievable potential, compared to 38 percent in the residential sector.[5] While business projects can benefit from economies of scale, the study suggests that residential customers may be able to account for a more significant share of savings than they have achieved in recent years due to the presence of cost-effective savings opportunities. Some of these cost-effective residential technologies include: light emitting diode (LED) light bulbs, home appliances, furnaces, and smart thermostats.

The Potential Study also found similar portfolio allocations when it benchmarked current Focus activities against similar programs in other states. On average, the six programs reviewed allocated 59 percent of total portfolio spending to business programs and 41 percent to residential programs.[6]

Commission Alternatives – Business versus Residential

Alternative One retains the current split where approximately 60 percent of Focus budgets are allocated to business programs and 40 percent to residential programs. This allocation reflects the proportion of Focus funds currently collected from each customer group. This alternative is

[5] "*Focus on Energy 2016 Energy Efficiency Potential Study*, June 30, 2017, Tables 2 and 3, pp. 6-7. Note: These percentages were adjusted to include the estimated amount of cumulative potential not captured from custom business projects (370 million kWh and 56 million therms).

[6] "*Focus on Energy 2016 Energy Efficiency Potential Study*, June 30, 2017, pp. 10 and 59. Benchmarked programs included Commonwealth Edison (Illinois), Consumers Energy (Michigan), Xcel Energy (Minnesota), Mass Save (Massachusetts), Energy Trust of Oregon, and EMPOWER Maryland.

generally consistent with amount of future savings potential in each customer group identified by the Focus potential study.

The Commission may want to select a different budget allocation under Alternative Two if it finds policy priorities merit greater emphasis on either business or residential programs. Any shift would need to be balanced with the requirements of Wis. Stat. § 196.374(5m)(a).

Alternative One: Approximately 60 percent of Focus funding shall be allocated to business programs ratepayers and 40 percent to residential programs.

Alternative Two: Choose a different formula for allocating Focus funding to business and residential programs based on revised priorities.

C. Balance Between Resource Acquisition and Market Transformation

Two general approaches are used to define the purposes of energy efficiency programs. The first approach is to use energy efficiency programs as a resource acquisition tool. Under this approach, energy efficiency is treated as one way to meet projected energy and demand needs, on the same level as generation resources. The main objective of this approach is to incent customers to use energy more efficiently, to minimize the need to procure other sources of energy. Goals for resource acquisition programs typically focus on maximizing the amount of cost-effective electricity and natural gas savings achieved.

While resource acquisition has been a more common approach with Focus, a second approach, market transformation, is also consistent with Wis. Stat. § 196.374(3)(b)1., which requires the Commission to give priority to programs that "facilitate markets and assist market providers to achieve higher levels of energy efficiency." Market transformation has been defined as "long-lasting sustainable changes in the structure or functioning of a market achieved by

reducing barriers to the adoption of energy efficiency measures."[7] Overcoming market barriers can be a complex process, involving several levels of market actors. LED lighting serves as an example. In the early 2000s, the U.S. Department of Energy (DOE) led market transformation efforts on this product by developing standards, funding research and development, setting minimum efficiency standards for manufacturers, and coordinating the efforts of all market actors.[8] The DOE also worked with the U.S. Environmental Protection Agency to operate the ENERGY STAR program, which motivates manufacturers to develop efficient technology that can qualify for ENERGY STAR labeling and thereby benefit from price premiums and marketing support. Research organizations provided information for all actors on LED technology and designs that best served consumers, and reduced the costs of LEDs.[9] Over the last 15 or so years, these efforts significantly improved LED quality and reduced product prices, transforming the LED market from a high-cost specialty product to a standard lighting option for all customers.

There are several examples of technologies achieving market transformation in Wisconsin, through efforts such as the above, as well as support from Focus' incentive programs. Some examples include:

- Residential gas furnaces. Utility incentives in the mid-to-late 1980s, combined with support from national market transformation efforts led to a 90.0 percent market share for energy efficient furnaces and this trend has continued under Focus. In 2016, the evaluator calculated that the average efficiency level for furnaces purchased in Wisconsin was 92.5 percent annual fuel utilization

[7] Ettenson, Lara & Noah Long, *"Market Transformation and Resource Acquisition: Challenges and Opportunities in California Residential Lighting Programs,"* ACEEE, 2010, p. 6.
[8] York, Dan and Hannah Bastian, Grace Relf and Jennifer Amann, *"Transforming Energy Efficiency Markets: Lessons Learned and Next Steps,"* ACEEE, December 2017, p. 11.
[9] York, Dan and Hannah Bastian, Grace Relf and Jennifer Amann, *"Transforming Energy Efficiency Markets: Lessons Learned and Next Steps,"* ACEEE, December 2017, p. 13.

efficiency (AFUE), significantly greater than the building code requirement of 90 percent AFUE.[10]

- Energy and water efficient clothes washers. The 2013 Focus Market Baseline study revealed that 99.0 percent of clothes washers sold were CEE Tier 1 (above ENERGY STAR standards).[11]
- Dishwashers in Wisconsin. Over 99.0 percent of dishwashers for sale in Wisconsin are ENERGY STAR certified.[12]
- Refrigerators in Wisconsin. Over 90.0 percent of refrigerators for sale in Wisconsin are ENERGY STAR certified.[13]

Table 2 below provides a framework for the distinctions between resource acquisition and market transformation on key variables including goals, scope of effort, administration, measurement of results, and timeframe for results to occur.[14]

Table 2 Key Distinctions Between Resource Acquisition and Market Transformation Programs

Variable	Resource Acquisition	Market Transformation
Scale	Program (typically a utility service territory but in Wisconsin, statewide)	Entire defined market (typically statewide, regional or national)
Target	Participants (utility customers)	All consumers (within the defined market)
Goal	Measureable savings	Structural changes in the market leading to long-term savings
Scope of Effort	Usually from a single program	Results from effects of multiple programs or interventions
Amount of Program Administrator's Control	Program Administrators (PA) control the pace, scale, geographic location, and can identify participants in general	Markets are very dynamic, and the PAs are only one set of actors. If, how, where, and when the impacts occur are usually beyond the control of the PAs.
What is tracked, measured, and evaluated	Energy use and savings, participants, and free-ridership	Short, medium and long-term indicators of market penetration and structural changes, attribution to the program, and cumulative energy impacts
Timeframe for cost effectiveness	Usually based on first year or cycle (program period) savings	Usually planned over a 5- to 10-year time frame

[10] Cadmus, *Focus on Energy Calendar Year 2016 Evaluation Report*, Volume II, May 19, 2017, p. 34.
[11] Cadmus, *Focus on Energy Calendar Year 2013 Baseline Market Study*, May 14, 2014, p. iv.
[12] *Id.*
[13] *Id.*
[14] Keating, K., 2014, *Guidance on Designing and Implementing Energy Efficient Market Transformation Initiatives.* San Francisco: California Public Utilities Commission. December 9, 2014.

While resource acquisition and market transformation are formulated as distinct approaches to advancing energy efficiency, in practice there is often crossover. If well designed and implemented, resource acquisition programs may support broader market transformation objectives.[15] For example, incentives paid to customers can increase demand for energy-efficient products as part of wider integrated market transformation initiatives.

The current approach in Focus to resource acquisition and market transformation was established in the Commission's Final Decision of September 5, 2014, which states that "Focus goals shall emphasize short-term energy savings. Qualitative targets for long-term market effects over the next 4 years shall be set, and the program administrator shall prioritize designs that simultaneously achieve short-term energy savings while targeting longer-term market changes." (PSC REF#: 215245.) The vast majority of Focus programs provide incentives directly to utility customers to purchase energy efficiency equipment for their home or business. While the Retail Lighting and Appliance Program works "upstream" with retailers to buy-down the cost of a product for the customer, it is still a resource acquisition program designed to reduce retail prices for customers and achieve measurable short-term savings.

During the present quadrennium, Focus has also used pilot and research funds to start exploring "midstream" programs, an increasingly prevalent program model nationwide which involves greater emphasis on market transformation. Midstream programs offer incentives to dealers, distributors or retailers to stock and sell energy efficient products, rather than incenting customers to purchase those products. Because lower per-unit incentives are typically required for market actors than for customers, this approach can in some cases achieve more cost-effective savings than traditional customer-based resource acquisition programs. This is especially true in

[15] York, Dan and Hannah Bastian, Grace Relf and Jennifer Amann, "*Transforming Energy Efficiency Markets: Lessons Learned and Next Steps,*" ACEEE, December 2017, p. 56.

cases where product costs are relatively high and the difference between efficient and non-efficient options are relatively limited, which is the case for many home appliance products, such as dehumidifiers and clothes dryers. Resource acquisition programs often do not offer customer incentives for those products because those offerings would not be cost-effective. However, offering a small incentive for the retailer to stock ENERGY STAR qualified brands achieves longer-term energy savings through market transformation. This type of incentive may also be particularly beneficial for products such as water heaters where customers often need to replace products immediately and do not take time to shop and compare different brands and features.

To address midstream opportunities for appliances, Focus has been participating on a pilot basis in a national midstream effort run by the ENERGY STAR Retail Products Platform (RPP). RPP is a new program model that offers participating retailers—primarily national chains that control a large share of the market for the targeted products—a financial incentive for each efficient unit sold.[16] Focus has targeted the following products in 2018: air cleaners; room air conditioners; dryers; refrigerators; soundbars and dehumidifiers. Incentives for standard efficiency tiers range from $10 on most products to $25 for dryers. Focus has budgeted $1.9 million for RPP efforts in 2018. Focus has also conducted small-scale pilots on midstream efforts with commercial kitchen equipment, midstream commercial lighting, and water heaters in the residential program. The total budget for these efforts in 2018 is $584,000, bringing total annual spending on market transformation activities to approximately $2,484,000.

Most traditional energy-savings based evaluation methods have been designed for resource acquisition programs. Large-scale implementation of midstream programs such as the

[16] Conzemius, Sara and Alexandra Dunn, 2018. *ENERGY STAR® Retail Products Platform (RPP): Conditions and Considerations in Evaluating Market Transformation Programs and Evaluation Guidance for RPP*. Prepared by Illume Advising, LLC, for the State and Local Energy Efficiency Action Network.

RPP has only begun in the past few years. As such, methods for evaluating midstream market transformation remain under discussion nationwide. There is general agreement that the metrics used to evaluate the progress of a measure over time will depend heavily on the program, so guidance to date has focused on establishing methods consistent with the logic of each individual program.[17] For example, as outlined in Table 2 above, some useful metrics for an RPP program could include: short, medium, and long-term indicators of market penetration and structural changes in the market, such as the number of participating retailers and efficient products sold; measures to assess the impact of the midstream incentives on sales of efficient products; and cumulative energy impacts over a longer time period. Focus staff is actively participating in the national discussion to develop evaluation methods for the RPP, and Cadmus will provide evaluation results for the RPP beginning later in 2018.

Finally, it is also worth noting that while some market transformation programs may generate measurable short-term savings, not all valuable market transformation efforts should be expected to do so. For example, an increasingly prominent approach to residential market transformation is to incorporate efficiency information into residential real estate listings, in order to provide customers with more information on efficiency levels and allow efficiency upgrades to be more effectively valued in home pricing. It is likely that the effects from implementing such an initiative in Wisconsin would take several years to fully assess. In addition, there would be fewer incentives given directly to customers, and funds would instead go to establishing market baselines and incenting retailers and distributors, for example, depending on the program. This, in turn, could have implications for program cost-effectiveness, and the potential study's resource acquisition goals would have to be reevaluated to take into account a much stronger market transformation component.

[17] *Id*.

Commission Alternatives – Resource Acquisition and Market Transformation

Alternative One is the current approach, which is to set short-term resource acquisition goals with qualitative targets and direct the Program Administrator to prioritize designs that simultaneously achieve short-term energy savings while targeting longer-term market changes. This approach places the primary focus of the programs on shorter term energy savings.

Alternative Two is to set market transformation goals and resource acquisition goals with equal emphasis. Under this alternative, a new framework for market transformation goals would need to be developed, addressing two key issues. First, new metrics would need to be determined to supplement resource-acquisition-based savings metrics. Second, timeframes for measuring metrics would need to be reevaluated, since many of the effects of market transformation activities typically occur over a longer timeframe than the 1-year and 4-year periods over which savings are currently tracked. Should the Commission choose this alternative, the Evaluation Working Group (EWG)[18] could report back to the Commission by November 1, 2018, on what would be reasonable metrics for measuring progress during the quadrennium.

Alternative Three is to develop market transformation goals and metrics, but continue to maintain greater emphasis on resource acquisition. This alternative would encourage Focus to increase market transformation efforts from current levels, but limit the effects on existing Focus resource acquisition programs. Setting an annual budget for market transformation of approximately $5 million, or twice the amount currently spent on RPP and other midstream pilots, would support increased efforts while limiting effects on Focus' existing resource

[18] The EWG is a committee created by the Commission in Quadrennial Planning I to address technical issues related to Focus evaluation. As specified in the Commission's original order, the membership of the EWG includes representatives of the Focus Program Administrator, Focus Evaluator, a participating utility, an outside industry expert, and a Commission staff member who serves as chair of the Group. The duties of the group, also specified by the Commission, include review of methods for determining program savings and review of detailed evaluation plans. (PSC REF#: 144537.)

acquisition portfolio. As such, the potential study's resource acquisition goals could be maintained, with market transformation metrics added on. Should the Commission choose this alternative, the EWG could report back to the Commission by November 1, 2018, on what would be reasonable metrics for measuring progress on the areas chosen during the quadrennium.

Alternative One: Focus goals should emphasize short-term energy savings. Qualitative targets for long-term market effects over the next 4 years should be set, and the Program Administrator shall prioritize designs that simultaneously achieve short-term energy savings while targeting longer-term market changes.

Alternative Two: Performance metrics and budgets that reflect specific market development and transformation goals, in addition to specific resource acquisition goals with equal emphasis, should be established. The market transformation goals should be set beyond and reviewed in the next quadrennium to reflect the long-range nature of certain efforts. Direct the EWG to report back to the Commission by November 1, 2018, on reasonable metrics for measuring progress on the areas chosen during the quadrennium.

Alternative Three: Performance metrics and budgets that reflect specific market development and transformation goals, in addition to specific resource acquisition goals, should be established. The budget should be twice the current efforts or approximately $5 million. Direct the EWG to report back to the Commission by November 1, 2018, on reasonable metrics for measuring progress on the areas chosen during the quadrennium.

II. COST-EFFECTIVENESS OF PROGRAMS

Under Wis. Stat. § 196.374(2)(a.)2., the purpose of Focus program is "to help achieve environmentally sound and adequate energy supplies at reasonable cost." The definition of "reasonable cost" is further outlined in the Wisconsin Administrative Code, which requires the Focus Program Administrator to "deliver energy efficiency and renewable resource programs that

pass a portfolio level test of net cost-effectiveness, as determined by the commission." Wis. Admin. Code § 137.05(12).

The Commission has historically used the Quadrennial Planning process to review and, where appropriate, update its determination of a cost-effectiveness testing approach. To begin, the Commission must select a general test framework to define which benefits and costs will be included in measuring cost-effectiveness. This memorandum also includes a review of the values of three specific test inputs: avoided costs; avoided carbon emissions; and the discount rate for future benefits. The Commission has reviewed these inputs in each Quadrennial Plan because their appropriate values can change over time in connection with evolving conditions or changes in the Commission's policy priorities.

A. Cost-Effectiveness Test

The cost-effectiveness of energy efficiency and renewable energy programs can be analyzed using multiple tests that include varying combinations of benefits and costs. The choice of test for a program can reflect its policy priorities. Several standard test frameworks can be selected to identify which audience the program should be designed to serve, such as utilities, the community as a whole, or that of non-participating ratepayers. Standard frameworks can also be modified to include other benefits or costs in order to better represent program goals.

Table 3 identifies the benefits and costs included in six cost-effectiveness tests used by Focus or programs in other states:

Table 3 Benefits and Costs Included in Cost-effectiveness Tests

Benefits	Total Resource Cost (TRC)	Modified TRC	Expanded TRC	Societal	Utility	Ratepayer Impact (RIM)
Utility Avoided Costs	X	X	X	X	X	X
Reduced Emissions		X	X	X		
Economic Benefits			X	X		
Non-Energy Benefits				X		
Costs						
Program Administration and Technical/Customer Support Costs	X	X	X	X	X	X
Incremental Costs to Participants	X	X	X	X		
Program Incentives Paid					X	X
Lost Utility Revenues						X
Test Currently Conducted by Focus?	No	Yes, Primary Test	Yes	No	Yes	Yes

The **Total Resource Cost (TRC) Test** is the most commonly used test framework nationwide, in part because it takes a general perspective on the benefits and costs to both utilities and customers. The benefits measured are the avoided costs to utilities from the program, including the costs to provide customers with the same amount of electricity and natural gas they saved through program participation, and the costs to build the additional capacity that would have been needed. To precisely measure the impact of Focus programs, these avoided costs have historically only applied to the "net" savings achieved by projects that would not have been carried out without the incentives and project support provided through Focus programs. Net savings exclude the savings from Focus projects implemented by "free riders" that evaluators conclude would still have taken the energy-saving action without Focus' assistance (and adding "spillover" savings from non-participants that can still be identified as influenced by Focus activities). Costs in the test include the program costs for administration and for technical and customer support, and the additional incremental costs participants pay to purchase efficient products or services rather than lower-cost alternatives. The TRC test does not include program incentive costs because, from its general perspective, they are a cost to the program and a benefit to participants, with no overall effect.

The Commission currently uses a **Modified TRC Test** as the primary cost-effectiveness test for assessing whether Focus has met the cost-effectiveness requirement in the Wisconsin Administrative Code. The Modified TRC includes all benefits and costs in the TRC, but adds as a benefit the dollar value of emissions (carbon dioxide, sulfur oxides, and nitrogen oxides) avoided through the program. Avoided emissions benefits have been included to reflect the fact that Wis. Stat. § 196.374(2)(a)2. identifies environmental benefits as a program goal and Wis. Stat. § 196.374(3)(b)1. states that the Commission's priorities for Focus programs should include "avoid[ing] adverse environmental impacts from the use of energy." As Focus' primary test and public measure of cost-effectiveness, the Program Evaluator annually reports the results of the Modified TRC. In 2016, Focus achieved a Modified TRC benefit-cost ratio of $3.00 to $1.00 ($3.00 in benefits for each $1.00 in costs).

The Commission has also directed Focus to conduct, for informational purposes, an **Expanded TRC Test** that adds to the Modified TRC the net economic benefits Focus achieves for the state of Wisconsin by increasing employment, business revenue, and consumer disposable income. The inclusion of economic benefits is broadly consistent with statutorily established Focus goals, which include helping enhance manufacturing competitiveness and creating or retaining jobs for workers in that sector (Wis. Stat. § 196.374(2)(a)2.e.) and for the Commission to prioritize programming that supports "rural economic development" (Wis. Stat. § 196.374(3)(b)1.). The Program Evaluator conducts economic modeling analyses every 2 years to calculate the economic benefits from Focus programs. The most recent analysis, released in January 2018, concluded that Focus achieved $348 million in net economic benefits in 2016, in part because energy efficiency and renewable projects reallocate funds that would have been spent on out-of-state fuel purchases towards technologies that are installed and, in many cases,

manufactured within the state. Adding these benefits to the Modified TRC results in a 2016 Expanded TRC benefit-cost ratio of $4.32 to $1.00.

The **Societal Test** includes all the benefits and costs of the expanded TRC, plus additional non-energy benefits achieved from program activities. In addition to the benefits provided in the Standard, Modified and Expanded TRC tests, the Societal Test includes the full range of non-energy benefits experienced by participants or society as a whole, including increased comfort, improved health (in part from reduced emissions), and lower product maintenance costs. The Wisconsin Statutes and Wisconsin Administrative Code do not identify any of these additional benefits as goals of the Focus program, and Focus does not currently conduct a Societal Test. An increase in evaluation costs would be required to develop the test and annually calculate results.

The **Utility Test** measures only the benefits and costs to the utilities responsible for funding Focus. Avoided energy and capacity costs from net savings comprise the benefits, while costs include all Focus program spending (administration, technical and customer assistance, and financial incentives). Because the Modified TRC does not include incentive costs, the Commission has directed Focus to use the Utility Test for informational purposes to help ensure that incentives for each measure are set at appropriate and cost-effective levels.

A growing number of states have adopted the Utility Test instead of the TRC Test. While specific rationales for switching to the Utility Test can vary by state, an emphasis on cost impacts is commonly cited, as are two other advantages. First, some observers consider the test to provide a clearer, more easily understood perspective on cost-effectiveness for stakeholders and the public. While the TRC test and its variants compare the generalized benefits and costs to the state or utility system, Utility Test results can be more concretely defined as utility return on program investments. Second, the Utility Test excludes benefits and costs from other tests that can be costly and uncertain to quantify. For example, the incremental costs to participants counted in the

TRC framework are time-consuming for program staff to document; carry measurement uncertainty related to the complexities of custom project development; and must be continually tracked and updated to reflect continual changes in market conditions.

The Utility Test can also serve as a direct measure of the impact of Focus program spending on overall utility costs, consistent with Focus' statutory purpose in Wis. Stat. § 196.374(2)(a)2. "to help achieve . . . adequate energy supplies at reasonable cost." Focus' 2016 Utility Test benefit-cost ratio of $7.61 to $1 indicates that for every dollar Wisconsin utilities spent through Focus, their costs of providing energy were reduced by $7.61.

Finally, the **Ratepayer Impact (RIM) Test** measures the effects on utility rates by comparing avoided utility costs to the costs of both program spending and the lost revenues to utilities that result from reduced energy usage. In effect, this comparison takes the perspective of a ratepayer who does not participate in the program, who would experience the increased rates as a cost. By contrast, participants in the program would see the rate increases offset by the reduced usage they achieved from participation. Partly for this reason, programs nationwide almost never use the RIM Test as a primary cost-effectiveness test. However, the Commission has followed the practice of many of those programs and directed Focus to run the RIM Test for informational purposes to provide a general overview of program effects on rates.

Some comments during the previous quadrennial plan expressed concerns that the design of the test was inadequate to accurately and appropriately measure rate effects. In particular, commenters emphasized that the RIM Test only measures the short-term effects on rates since the long-term reductions in costs commonly identified by the Utility Test would also influence rates later in the test period. It was also noted that the RIM Test does not provide information relevant to the more detailed evaluation of ratepayer effects, such as the distribution of effects across customer classes.

In 2016, Focus achieved an overall RIM Test benefit-cost ratio of $0.89 to $1.00, indicating that Focus spending is projected to influence a small increase in future utility energy rates. This RIM Test result, in combination with the positive benefit-cost ratio from the Utility Test, indicates that rates will increase while total energy costs will decrease as a result of Focus' 2016 activities.

Commission Alternatives – Cost-Effectiveness Test

Alternative One would be to continue using the Modified TRC test as Focus' primary cost-effectiveness test. Using the Modified TRC maintains continuity with existing reporting and analysis on Focus cost-effectiveness. This includes the cost-effectiveness ratios historically reported for the program through annual evaluation reports, and the future savings potential identified for Focus in the 2017 potential study.

Alternative Two would be to use the Expanded TRC as Focus' primary cost-effectiveness test. Selecting this test would recognize that Focus statutes identify economic goals for the program in addition to the environmental goals addressed by the Modified TRC. Economic impacts are currently assessed every 2 years, but the Wisconsin Administrative Code requires cost-effectiveness screening to take place annually. Thus, selecting this alternative may increase evaluation costs. In addition, some adjustments to current economic impacts methods may be needed to ensure the results are aligned with existing practices for conducting program planning.

Alternative Three would be to use the Utility Test as Focus' primary cost-effectiveness test. This test would recognize only the benefits and costs to the utilities responsible for funding Focus rather than the additional benefits and costs identified by other tests.

Alternative One: Focus programs shall meet a Modified TRC Test of cost-effectiveness.

Alternative Two: Focus programs shall meet an Expanded TRC Test of cost-effectiveness.

Alternative Three: Focus programs shall meet a Utility Test of cost-effectiveness.

Alternative Four: Focus programs shall meet a Societal Test of cost-effectiveness.

Alternative Five: Focus programs shall meet a RIM Test of cost-effectiveness.

Alternative Six: Focus programs shall meet a TRC Test.

Informational Tests

As noted above, the Commission has also directed Focus in previous Quadrennial Plans to conduct additional cost-effectiveness tests for informational purposes in order to assess a wider range of impacts and perspectives than any single, primary cost-effectiveness test could allow for. At present, the Expanded TRC Test is conducted to recognize the Commission's interest in Focus' economic impacts; the Utility Test is conducted to ensure evaluation takes into account the cost-effectiveness of the incentive costs that the TRC Test excludes; and the RIM Test to reflect an interest in program rate impacts.

Alternative One: Depending upon the primary cost-effective test selected, one or more of the following shall be used as a secondary test for informational purposes:

a. TRC Test

b. Modified TRC Test

c. Expanded TRC Test

d. Utlity Test

e. Societal Test

f. RIM Test

Alternative Two: No additional cost-effective tests for informational purposes shall be used.

B. Avoided Costs

All cost-effectiveness tests used by energy efficiency and renewable energy programs include as a benefit the avoided costs to utilities from program energy savings. Avoided costs should be calculated to capture the amount of additional costs utilities would have borne to provide customers with the same amount of electricity and natural gas they saved through program participation, as well as the costs to build the additional capacity that would have been needed to support the reduced electric demand. The following sections separately present analysis and alternatives related to the three types of avoided costs: (1) electric avoided costs; (2) electric capacity avoided costs; and (3) natural gas avoided costs.

1. Electric Avoided Energy Costs

In Quadrennial Planning II, the Commission affirmed its decision from the first Quadrennial Planning process, to set electric avoided energy costs based on a forecasted locational marginal price (LMP) that is the average of LMPs across Wisconsin nodes. (PSC REF#: 215245.) Historically, LMPs have been used as a reflection of the unit price for electricity in the MISO territory due to their status as the publicly available market price used to inform wholesale electric purchases. While private bilateral contracts are reached for most purchases, those contracts typically use available LMP data for price discovery. In order to align with the Commission's use of a life cycle savings framework that emphasizes the achievement of long-term energy savings, avoided costs are calculated using forecasted LMPs developed as part of MISO's Transmission Expansion Planning (MTEP) process, rather than actual historical values.

Present-day LMP values can vary at the individual nodes in Wisconsin that inject power into the utility system, either through generators or connections to the regional grid. Therefore, LMP values at each node serve as a measure of the cost of electricity production, as well as the transmission costs associated with transmitting electricity to the node at a given time which can

incorporate system losses and grid congestion. Averaging values across Wisconsin nodes allows for a determination of a Focus price that accounts for any variation between generation and transmission costs at individual nodes.

During Quadrennial Planning II, some commenters suggested that avoided transmission and distribution infrastructure costs should be added to the avoided cost calculations since they are not fully accounted for in forecasted LMPs. While future prices on the system account for generation costs from established resources, these methods cannot formally account for the transmission congestion costs present in actual LMPs since those costs are based upon actual, real-time system operations. As such, use of forecasted methods may not fully capture the transmission and distribution costs associated with present-day LMPs. Measuring Focus' effects on infrastructure projects is not as straightforward as its effects on the energy production costs incorporated in LMPs since energy savings would not reduce transmission and distribution costs on a per-unit basis. However, commenters noted that Focus could still reduce such fixed costs on a long-term basis if its energy savings allow Wisconsin utilities to reduce the scale of future spending on infrastructure additions. Sources are available for overall projected infrastructure costs through the MTEP process, or could be informed by an analysis of the transmission cost components in present-day LMPs.

Commission Alternatives –Electric Avoided Energy Costs

Alternative One: For the purposes of evaluating Focus, avoided electric energy costs shall be based on a forecasted LMP that is the average of LMPs across Wisconsin nodes.

Alternative Two: For the purposes of evaluating Focus, avoided electric energy costs shall be based on a forecasted LMP plus a transmission and distribution cost adder. The EWG shall review available data for determining the appropriate value of an adder and report its findings and recommendations to the Commission by November 1, 2018.

2. Avoided Electric Capacity Costs

For purposes of Focus evaluation, avoided electric capacity costs have been defined based on the unit cost of a peaking plant. (PSC REF#: 215245.) This definition is based on the assumption that peaker plants will typically operate on the margin within the MISO market, and that Focus-related demand savings will therefore have effects on the sizing and operating frequency of those plants.

In Quadrennial Planning II, some commenters suggested that the fixed costs of baseload and intermediate plants should also be treated as avoided costs. As with transmission and distribution costs, these costs are not incurred on a unit basis, but the energy savings produced by Focus could reduce spending requirements for capacity on a long-term basis. Focus' effects may be of particular significance within the next several years if the Commission expects significant retirements of existing baseload and intermediate capacity. Such plants would need to be replaced with new baseload and intermediate sources, and Focus' energy savings could influence the decisions made on the capacity of those plants and their associated costs. Forecasts of capacity additions developed by MISO through the MTEP process, as well as forecasts of capital and fixed operation and maintenance costs developed by MISO and the Energy Information Administration (EIA) may be able to serve as sources for forecasting appropriate costs.

Commission Alternatives – Avoided Electric Capacity Costs

Alternative One: For the purposes of evaluating Focus, avoided electric capacity costs shall be based on the unit costs of a peaker plant.

Alternative Two: For the purposes of evaluating Focus, avoided electric energy costs shall incorporate the unit costs of a peaker plant and of baseload and intermediate capacity. The EWG shall review available data for determining the appropriate value of baseload and

intermediate capacity and report its findings and recommendations to the Commission by November 1, 2018.

3. Natural Gas Avoided Costs

Natural gas avoided costs refer to the marginal costs that a utility does not incur due to the reductions in therm usage achieved through Focus programs. In the previous Quadrennial Planning process, the Commission found it "reasonable for the purposes of evaluating programs to use a long-term price forecast to calculate the avoided cost of natural gas," for consistency with Focus' life cycle savings framework and the forecast-based methods in place for calculating electric avoided costs. (PSC REF#: 215245.) The Commission asked the EWG to review available options for calculating natural gas costs and recommend specific sources and methods to the Commission.

In its Final Decision of February 26, 2015, the Commission approved the methodology recommended by the EWG. (PSC REF#: 232431.) This method calculates natural gas costs specific to Wisconsin by identifying forecasted Henry Hub natural gas prices from the most recent EIA Annual Energy Outlook (EIA AEO), and using other EIA data to account for the additional transport, storage, and distribution costs associated with delivering gas to Wisconsin customers. Transport and storage costs are accounted for by increasing the forecasted Henry Hub price by the 5-year average historical differential between Henry Hub prices and the Wisconsin City Gate prices. Avoidable distribution costs are accounted for by increasing adjusted City Gate prices based on the 5-year average historical differential between Wisconsin City Gate prices and Wisconsin retail prices after reducing the total differential to factor out the proportion of those costs that are fixed in the short term. The Commission ordered that avoided cost calculations using this method be updated for each new Focus quadrennium, and may be updated at other times, if deemed appropriate by the EWG based on changes in conditions.

The EWG recommended this method because it provided long-term forecasts of Wisconsin-specific costs from a transparent source that could be obtained with no additional evaluation cost to Focus. Other available sources for gas price forecasts do not meet all of those criteria. Forecasts based on futures markets such as the New York Mercantile Exchange generally only provide forecasts for 3 to 5 years, and do not provide long-term forecasts that cover the 20- to 30-year lifetimes of certain Focus measures. The MTEP process uses a long-term Henry Hub price forecast, but it uses a privately prepared, proprietary model that may not be fully transparent to Focus, and does not provide additional details to help derive Wisconsin-specific costs. States that do not use publicly available sources such as the above typically commission their own proprietary forecasts, which would allow more transparency to the program but would require Focus to incur additional evaluation costs.

Further review indicates that these continue to remain the available options for calculating forecasted natural gas costs, and that some other states do use EIA AEO forecasts as a primary data source. For example, efficiency programs throughout the New England region have used EIA forecasts[19] for the purposes of estimating avoided costs over a 30-year time period.

Commission Alternatives – Natural Gas Avoided Costs

Alternative One: For purposes of evaluating the Focus program, avoided natural gas costs shall continue to be calculated based on EIA forecasts of Henry Hub prices adjusted using Wisconsin City Gate prices and retail prices to estimate avoided natural gas costs in Wisconsin.

Alternative Two: For purposes of evaluating the Focus program, avoided natural gas energy costs shall be based on a long-term price forecast. The EWG shall review available sources

[19] Synapse Energy Economics | *Avoided Energy Supply Costs in New England: 2015 Report.* http://ma-eeac.org/wordpress/wp-content/uploads/2015-Regional-Avoided-Cost-Study-Report1.pdf.

for long-term price forecasts and recommend appropriate sources and calculation methods to the Commission no later than November 1, 2018.

C. Discount Rate – Discount Rate

Cost-effectiveness tests are designed to identify the present value of program costs and benefits, so that they can inform present-day program decisions. While test costs—program spending and customer purchase costs—are incurred in the same year as the test, the value of benefits achieved through avoided costs and avoided emissions occurs over the future lifetime of installed products. A discount rate is therefore applied to program benefits so present-day benefits can be compared to present-day costs. In both the first and second Quadrennial Planning Processes, the Commission set a discount rate of 2.0 percent, wherein the value from future energy savings was reduced by 2.0 percent between the year the benefit occurred and the base year of the cost-effectiveness test.

Three types of discount rates are used by energy efficiency and renewable energy programs across the country. First, discount rates can reflect utilities' weighted cost of capital. By capturing the value to participating utilities of all their capital options, using the weighted cost of capital allows direct comparison of the costs of investing in demand-side savings and procuring supply-side resources.

Second, discount rates can reflect a risk-adjusted cost of capital, which sets a rate below the weighted cost of capital. A primary economic rationale for discounting is to account for the risk that unforeseen events may prevent those benefits from being achieved. Because many energy-efficiency and renewable energy programs are funded through system benefits charges that have low risk of non-recovery, and fund installation of measures that have a high probability of achieving a future stream of benefits, energy efficiency and renewable energy programs can be seen as meriting a lower discount rate than supply-side options. The Commission selected Focus'

2.0 percent discount rate in the second Quadrennial Planning Process to reflect this risk adjustment. The value was selected as consistent with the interest rate for U.S. Treasury bills, a common reference point for risk-adjusted discount rates due to the status of treasury bills as a low-risk investment option.

Third, discount rates can reflect a societal discount rate. Societal discount rates are selected on the rationale that energy efficiency and renewable energy programs reflect a public investment to achieve societal benefits, such as sustainability and reduced energy costs, rather than a private investment tied to market rates. Societal rates assume that society as a whole discounts future benefits less than individuals or organizations because society places greater value on the benefits that accrue to future generations. Societal discount rates can be set as low as 0 percent, reflecting the assumption that society values present and future benefits equally.

Commission Alternatives – Discount Rate

Alternative One maintains Focus' current discount rate of 2.0 percent. While Treasury bill interest rates as of February 2018 were below 2.0 percent, these low rates may not be sustained over the coming quadrennial period. Maintaining a 2.0 percent value reflects the assumption that average rates may increase in the next few years, and also provides for consistency and comparability with cost-effectiveness results during the present quadrennial.

Alternative Two is to set a societal discount rate of zero and equally value present and future benefits.

Alternative Three is to set the discount rate based on utility cost of capital. Under this alternative, a discount rate of 7.4 percent could be established to reflect the average weighted cost of capital in each investor-owned utility's most recent rate case.

Alternative Four would be to set a discount rate at a different percent. This alternative would be appropriate if the Commission believes a risk adjustment to weighted average cost of

capital is appropriate, but believes the appropriate adjustment should be smaller than in Alternative One.

Alternative One: Use a discount rate of 2.0 percent in Focus' cost-effectiveness tests.

Alternative Two: Use a discount rate of 0 percent in Focus' cost-effectiveness tests.

Alternative Three: Use a discount rate of 7.4 percent in Focus' cost effectiveness tests.

Alternative Four: Use a discount rate of ___ percent in Focus' cost-effectiveness tests.

D. Value of Carbon

Focus' Modified TRC cost-effectiveness test includes as a benefit the value of the avoided emissions that result from program energy savings. Historically, the test has accounted for the emissions of nitrous oxides (NO_X), sulfur oxides (SO_X), and carbon dioxide (CO_2). Monetary values for NO_X and SO_X are set at the values established in national markets for trading emissions allowances. Because no national market exists for carbon dioxide emissions, no single accepted value is available, and determining an appropriate value has been treated as a policy decision for the Commission to make in the Quadrennial Planning Process.

The value of carbon can be defined based on either its market value or its social costs. Market-based values are based on the value of per-ton emissions allowances traded in organized emissions markets, and therefore reflect the costs to market participants of achieving carbon reductions. The social cost of carbon is calculated to account for a broader range of societal costs created by carbon emissions, such as increased health care costs, environmental damages, and decreased agricultural productivity. The Commission set a carbon value of $30.00 per ton in the 2011-2014 quadrennial to reflect a balance between market-based and social cost values. In Quadrennial Planning Process II, the Commission set a market-based value of $15.00 per ton. (PSC REF#: 279739.) These values have been designed to reflect the net present value of future carbon prices over 25 years for consistency with Focus' life cycle savings framework.

The standard historical source for social costs for carbon have been the values calculated by a federal interagency working group. During the Commission's review of carbon values in Quadrennial Planning Process II, the most recent values calculated by the working group for the moderate-cost scenario most commonly used in federal benefit-cost analyses set the social cost of carbon at $36 per ton[20] in 2015, increasing to $61 per ton by 2040. (PSC REF#: 279042.) Approaches to calculating social costs have since become more varied and uncertain. In 2017, the federal government suspended the use of the previously established working group values, and subsequently published analyses using different methods that significantly reduce present-day social costs. At the same time, several states have recently affirmed the use of social cost values for system planning or other purposes and established a range of different values that in some cases remain more consistent with the previous working group calculations.

During the Commission's initial 2014 review of carbon values in Quadrennial Planning II, market-based valuation of carbon was viewed as uncertain due to the pending status of federal carbon regulation under the Clean Power Plan. Because no carbon value for the quadrennial was needed until early 2016, the Commission delayed a final decision and asked for a report on appropriate market-based values from the EWG. The Commission also set a temporary market-based value of $15 to be used for program planning purposes. (PSC REF#: 215245.) The EWG's fall 2015 report on carbon-based values concluded that market-based valuation remained unclear largely due to continued uncertainties regarding the implementation status of the Clean Power Plan. Rather than recommending a specific value, the EWG outlined six scenarios

[20] All per-ton values in this memorandum are expressed in terms of short tons of CO_2. These values will differ from some published sources which express values in metric tons. A metric ton (sometimes called a long ton) is approximately 10.0 percent larger than a short ton (2,240 pounds vs. 2,000 pounds). While different sources vary in whether they use short tons and metric tons, Focus' historical practice has been to report in short tons, and that practice has been continued in this memorandum. Because social costs of carbon and California prices are publicly reported in terms of metric tons, the figures reported here have been converted to short tons and will differ from the values found in primary sources.

regarding the future trajectory of carbon prices. Each scenario began with the 2015 carbon price established in California's emissions trading market, $10.98 per ton, as the best available market-based source in the U.S. The EWG then used multiple sources to model future growth rates of carbon prices through 2040 and calculated the net present value in each scenario, with final results that range from a minimum-growth scenario of $11.50 per ton to a maximum-growth scenario of $28 per ton. (PSC REF#: 279042.) In its Final Decision of December 23, 2015, the Commission concluded that it was reasonable to continue using a carbon value of $15 per ton, as it was consistent with the proxy value already used for planning and fell within the range of reasonable values identified by the EWG. (PSC REF#: 279739.)

The general uncertainty surrounding market-based carbon values has continued through the present. The federal government is pursuing repeal of the previously proposed Clean Power Plan; it has indicated that an alternative initiative may be proposed, but no information is currently available on the projected terms or implementation date. The state values available to serve as proxies in the absence of a national market are also subject to future uncertainties. Future carbon values in existing markets in California and the northeastern U.S. may vary significantly, depending on the outcomes of current policy discussions that could modify the design of those markets. Market development may also take place in other states in the coming years and provide other values for consideration.

For these reasons, the Commission may still find it reasonable to consider a range of scenarios for market-based values. In January 2018, Commission staff requested that Cadmus, the Focus Program Evaluator, assess how recent developments would affect calculation of the scenarios presented in 2015. Cadmus noted that prices in the California market have increased since 2015, from $10.98 per ton to $13.70 per ton in 2018. Since the previous scenarios used the 2015 value as a starting point, a direct substitution of new values in the model would result in

scenario values ranging from a minimum-growth value of $14.00 per ton to a maximum-growth value of $35.00 per ton. To provide additional perspective, Cadmus also assessed how adjustments to the structure of the projection model would affect final projected prices by assuming further delays in the implementation date of new federal or state regulations and modifying projected price trends before the implementation date to recognize the changes in the date and current California prices. These adjustments resulted in a range of values from $12.50 per ton in the low-cost scenario to $25.00 per ton in the high-cost scenario.

Commission Alternatives – Value of Carbon

Alternative One is to maintain the current market-based value of $15.00 per ton, in recognition that changes in available data on carbon values have been limited since the Commission assigned this value in 2015.

Alternative Two is to maintain a market-based carbon value and request the EWG to provide an updated range of alternative values for Commission consideration, to further review alternatives to the existing approach for determining a value.

Alternative Three is to establish a social cost of carbon and request the EWG to provide a range of recommended values by October 2019. Given the recent proliferation in different methods for calculating social costs, requesting further information from the EWG would allow for a more detailed accounting and analysis of alternative options for finalizing a social cost value.

Alternative One: Focus cost-effectiveness tests shall value avoided CO_2 emissions using a market-based value of $15.00 per ton.

Alternative Two: Focus cost-effectiveness tests shall value avoided CO_2 emissions using a market-based value. No later than October 2019, the EWG shall provide a report to the Commission on alternatives for an appropriate market-based carbon value, at which time the Commission will select the proper valuation.

Alternative Three: Focus cost-effectiveness tests shall value avoided CO_2 emissions using the social cost of carbon. No later than October 2019, the EWG shall provide a report to the Commission on alternatives for an appropriate social cost of carbon value, at which time the Commission will select the proper valuation.

III. PROGRAMS WITH FUNDING ALLOCATION DECISIONS

This section addresses three scoping topics that involve funding allocations and therefore have been grouped together. The first has to do with renewable energy program priorities and budgets. The second and third address the future of the two new programs for which the Commission authorized funding in 2017 and 2018: the Integrated Anaerobic Digester System Program, and the programs to support underserved rural areas of the state.

2017 and 2018 Focus Budget

Focus collects approximately $100 million per year from statutorily required utility contributions. Table 4 below provides information on the 2017 and 2018 budget allocations for all Focus programs.

Table 4 2017 and 2018 Budget Allocations for All Focus Programs

Year	Core Program Administration	Core Program Implementation	Rural Programs	Anaerobic Digesters	Renewable Incentives	EERD	Total
2017	$6,800,000	$89,955,851	$13,636,480	$0	$3,200,000	$329,835	$113,922,166
2018	$7,600,000	$92,076,580**	$13,636,480	$20,000,000	$5,574,092	$329,835	$139,216,987
TOTAL	$14,400,000	$182,032,431	$27,272,960*	$20,000,000	$8,774,092	$659,670	$253,139,153

*Rural Program Implementation Budget is $26 million and the Administration/Evaluation Budget is $1,272,960 across the 2 years.
** Of this, $56 million is allocated to Business Programs and $34 million for Residential Programs.

Of total annual collections, approximately $6 million is allocated for the Compliance Agent, Evaluation, Fiscal Agent, Commission Staff, SPECTRUM, and the Environmental and Economic Research and Development Program (EERD), which leaves approximately $94 million for the administration and implementation of core Focus energy efficiency and renewable

programs. Renewable incentives accounted for between $3 and $5 million in 2017-2018, while Focus "core" energy efficiency programs were budgeted at approximately $90 million. The $47 million in additional budget for rural and digester programs was funded with surplus Focus collections that were unspent in previous years. Focus' collections are expected to remain at approximately $100 million in future years. No unobligated surplus remains from previous years, but any funds unspent in the core Focus programs, digester, or rural programs at the end of 2018 would provide additional surplus funds starting in 2019. Core Focus programs, renewable incentives and any continuing rural and digester initiatives must be funded out of these annual collections and year-end 2018 surpluses.

A. Renewable Energy Priorities and Funding

Focus has historically offered renewable resource programs designed to support all types of renewable technologies, including biogas, biomass, geothermal, wind, solar photovoltaic (PV), and solar thermal. The Renewable Energy Priorities section addresses Commission options for the design and funding of these general renewable programs in the 2019-2022 quadrennium.

In 2016, the Commission created a separate Integrated Anaerobic Digester System Program dedicated to funding projects using multiple biogas digesters to produce energy and address other challenges, such as manure and nutrient management and water quality. The Integrated Anaerobic Digester System Program section addresses Commission options for future action on integrated digester systems.

1. Renewable Energy Priorities

There are three issues in this section: (1) determining the program design and structure of renewable energy offerings; (2) determining whether a mid-size business prescriptive offering should be developed; and (3) determining the budget levels for renewable energy programs.

Currently there are two components to the renewable program structure. First, the Renewable Rewards program provides residential and business customers with prescriptive financial incentives for solar electric and geothermal heat pump systems. Funding is managed through a reservation system. Second, the Renewable Energy Competitive Incentive Program (RECIP) provides business customers with financial incentives for cost-effective renewable energy projects. Financial incentives are awarded through a competitive proposal process, based on the lowest cost per kW proposed.

Renewable Energy program structure and funding has been the subject of several decision points during the second quadrennium. The Commission made $5 million and $2.5 million available for renewable incentives in 2015 and 2016, respectively, and directed the Program Administrator to develop a Renewable Loan Fund (RLF). The RLF was launched in January 2016, with a budget of $10 million over the quadrennium. While the RLF program did enroll some customers in its first year of operation, some on-going challenges limited RLF participation, including lack of customer education about the program, administrative burdens, low market interest rates, and limited incentives for lenders to participate. (PSC REF#: 295733.)

In contrast to the RLF, customer demand for renewable incentives outpaced available funds. In light of the limited demand for the RLF and continued high demand for renewable incentives, the Commission found it reasonable to discontinue the RLF and instead used the remaining balance in the RLF for renewable incentives in 2017 and 2018. In its Final Decision of December 20, 2016, the Commission determined that, based on a budget of $7.7 million, the renewable energy program budget would allocate $1.1 million to residential incentives in both 2017 and 2018, $2.1 million in business incentives for 2017, and $3.4 million in business incentives for 2018. (PSC REF#: 295733.) Any additional funds obligated under the RLF but

not paid were to be used for renewable incentives in 2018 and allocated between residential and business incentives proportional to the approved budget.

The Commission's Final Decision of December 20, 2016, also made two changes to the design of solar incentives within its programs. Solar PV incentives were capped at 12.0 percent of total system costs, rather than a flat incentive amount. This change was intended to ensure that incentives remain at appropriate levels as PV costs continue to change. In addition, the capacity cap for business prescriptive solar PV incentives were increased to 8 kW from 4 kW. (PSC REF#: 295733.)

Demand for solar incentives remains high overall. As shown in Table 5, the residential and business prescriptive solar programs saw annual increases in the number of applications approved between 2014 and 2017, despite the incentive cap being decreased in 2017.

Table 5 Prescriptive Renewable Applications, 2014-2017

Year	Residential Applications Approved	Business Applications Approved
2014	245	21
2015	349	25
2016	466	33
2017	472	74

The residential renewables program approved a record number of projects in 2017. However, concerns have been raised that the Commission's increase in the capacity cap has not been sufficient to fully support mid-size business projects. The solar installer community contends that there is a gap in service under the current program structure where prescriptive incentives work well for smaller projects, with larger projects being served by the RECIP process. Approximately 70 percent of the 2017 Business Renewables projects were under 25 kW. Participants with larger projects typically find the RECIP offering to be more attractive with the potential incentives high enough to warrant the administrative effort, and they are not subject to the same incentive limits as the prescriptive solar offerings. This is evidenced by the average RECIP

proposal size of 152 kW in the last round of funding. While the highest number of RECIP project applications in the last round were for projects in the 26 kW to 125kW range, only 60 percent of those projects received RECIP awards, while 96 percent of projects over 125 kW received awards. This variation is largely driven by the RECIP project scoring system, which awards over half of available points based on the cost-effectiveness of the project, a metric that tends to favor larger projects. The number of applications by size of project is illustrated in Table 6 below.

Table 6 Number of RECIP Applications by Project Size vs. Awarded

System Capacity	Number of Applications Submitted	Number of Applications Awarded
Under 25 kW	32	15
25 kW – 125 kW	49	29
Over 125 kW	28	27
TOTAL	109	71

The remaining unfunded mid-size business project opportunities are those that applied for RECIP, but did not receive awards, or some trade allies reported not submitting projects because they did not think they would receive funding under the current RECIP structure. From Table 6 above, the 20 projects in the 25 kW to 125 kW capacity range that were not funded had a total incentive request of just over $600,000.

Two other recent developments related to the renewable program may inform the Commission's decisions on program design and funding. The first was announced by the federal government in January, which will place a 30 percent tariff on imported solar cells and module panels next year and ultimately fall to 15 percent by the fourth year. In each of the 4 years, the first 2.5 gigawatts of imported solar cells will be exempted from the tariff.[21] The magnitude of the impact on the solar market is unclear, but several sources have predicted a smaller impact on the

[21]Donald J. Trump, *"Presidential Proclamation to Facilitate Positive Adjustment to Competition from Imports of Certain Crystalline Silicon Photovoltaic Cells,* Issued: January 23, 2018.

average homeowner or business owner, but predict that large-scale projects might be more impacted.[22]

A second issue to consider is that during the most recent round of EERD solicitations in fall 2017, a project was awarded funding to examine the current structure of the renewable energy portfolio. Tetra Tech, a research contractor located in Madison, Wisconsin, is conducting a thorough analysis of the Focus renewables program and other similar programs across the U.S. to determine best practices. This project is expected to be completed by September 2018 to help inform program design for 2019.

Commission Alternatives – Renewable Energy Program Design and Structure

The Commission could choose to maintain the current structure of the renewable resource programs, or to modify specific components of the program, such as the solar incentive amounts and capacity cap the Commission set for 2017 and 2018. Alternatively, the Commission could choose to postpone a determination until Tetra Tech's research project is complete.

Alternative One: Determine that the current structure of Renewable Rewards and RECIP should continue in the next quadrennium.

Alternative Two: Modify the current for Renewable Rewards and RECIP structure.

Alternative Three: Determine that this decision should be postponed until the EERD study is completed in September. Direct the Program Administrator to report back by October 31 with alternatives.

[22]*See, e.g., Williams, Marylee,* Wisconsin Public Radio. *"Wisconsin Residents May Not Feel Impacts of Trump's Solar Tariff."* January 23, 2018.

Commission Alternatives – Renewable Energy Mid-Size Business Offering

Commission staff, with input from APTIM, has identified four alternatives for the Commission to consider in regards to a mid-size business renewable offering should the Commission decide to continue the same general Renewable Rewards and RECIP structure. Alternative One would expand the prescriptive incentive program to add a higher tier for larger projects. APTIM examined the system capacities of projects in the business prescriptive program and found that approximately 70 percent of those projects in 2017 were under 25 kW. The prevalence of smaller projects is likely driven by the existing incentive caps which limit incentives to levels that make them unattractive for larger projects. Therefore, APTIM suggested setting up a second tier to the prescriptive Business Renewables Program specifically for projects larger than 25 kW. The same structure laid out by the Commission, which includes a cap of 12.0 percent of system cost, would be retained, and a cap on incentives could be set at $10,000. Table 7 below shows the current offering and the proposed offering.

Table 7 Proposed Mid-Business Prescriptive Incentive Compared to Current Offering

CURRENT OFFERING		
Tier	System Capacity	Incentive
Residential	Minimum 0.5 kW	12% of system cost, not to exceed $2,000
Business	Minimum 0.5 kW	12% of system cost, not to exceed $4,000
PROPOSED OFFERING		
Residential	Minimum 0.5 kW	12% of system cost, not to exceed $2,000
Small Business	0.5 kW up to 24.99 kW	12% of system cost, not to exceed $4,000
Mid-Business	Minimum of 25 kW	12% of system cost, not to exceed $10,000

Should the Commission want to address this gap in program offerings at this time, this alternative would keep administrative costs lower, as is the case with other prescriptive offerings. However, the EERD study to be completed at the end of September 2018 might reveal a different approach. Also, it is difficult to predict with certainty the impact of the solar tariff on projects of this size.

Alternative Two would explore a new RECIP solicitation that specifically targets mid-sized business projects in order to isolate this customer segment. This could be accomplished in one of two ways. One would be to offer a RECIP solicitation specifically targeted to mid-size business projects, possibly with more streamlined proposal requirements and a more regularly recurring schedule. A second option would be to set targets for the number of RECIP awards at specific project size ranges in each round of funding. This option would require very few modifications to the offering, however, it would not include modifications to the requirements which may be needed for mid-sized business projects. Each of these options would have the advantage of gathering more project information than the prescriptive alternative above, but administrative costs could be slightly higher if a second RECIP process is chosen. Should the Commission choose either of the options for this alternative, the Program Administrator could report back to the Commission by July 1, 2018, on the redesign.

Alternative Three would be for the Commission to postpone a decision on a mid-size customer offering until the results of the EERD study are completed in September 2018. The study results may reveal a different design approach to address this gap. However, it would delay work on designing renewable programs for the new quadrennium until October or later.

Alternative Four is to leave the current structure as is, and determine that the current prescriptive and RECIP approaches adequately meet business customer needs.

Alternative One: Determine that a third tier should be added to the prescriptive incentive structure to serve mid-size business projects.

Alternative Two: Determine that a new RECIP process should be developed, aimed at mid-size business projects. Direct the Program Administrator to report back by July 1 with alternatives.

Additional Option A: Offer a RECIP solicitation specifically targeted to mid-size business projects, with more streamlined proposal requirements and a more regularly recurring schedule.

Additional Option B: Set targets for the number of RECIP awards at specific project size ranges in each round of funding.

Alternative Three: Determine that this decision should be postponed until the EERD study is completed in September. Direct the Program Administrator to report back by October 31 with alternatives.

Alternative Four: Determine that the current structure is adequate to address the needs of renewable business customers.

2. Renewable Budgets for 2019-2022

Following the Commission's Final Decision on December 20, 2016 (PSC REF#: 295733), APTIM issued a Request for Proposals for the RECIP. These are proposals for larger scale, custom renewable projects funded with prescriptive incentives. Proposals that provide the greatest savings per dollar spent are selected, with trade allies typically submitting proposals on behalf of their customer. The number of RECIP applications has increased steadily over the last few years, with slightly more than half being funded in each round. The results for the two rounds of RECIP in 2017 are in Table 8 below.

Table 8 RECIP Applications and Awards in 2017

2017	Round 1	Round 2
Total Applications	104	111
Biogas	2	2
Geothermal	1	0
Solar PV	101	109
Number Awarded	61	66
Biogas	1	1
Geothermal	0	0
Solar PV	60	65

Table 9 below shows the RECIP expenditures and number of projects completed between 2015 and 2017. Because timeframes for development and construction of large projects can vary, many projects do not receive final payment in the year the awards were made. The number and timing of RECIP processes within the year can also affect the timing of final payments. Due to the 2-year funding decision at the end of the second quadrennial planning process, Focus had one round of RECIP in 2015 and none in 2016. But because of the funding decisions at the end of 2016, there were two rounds in 2017. Many of the projects awarded in 2017 are expected to complete construction and receive payment in 2018.

Table 9 RECIP Projects Completed 2015-2017

Year	Incentive	Non-Incentive	Total Expenditures	Projects Completed
2015	$4,122,150	$147,399	$4,269,549	60
2016	$2,042,803	$10,263	$2,053,066	14
2017	$1,398,442	$102,541	$1,500,983	32

While the number of projects that closed in the Residential Renewable Rewards Program remained relatively consistent, the Commission's change from a set incentive amount to a percentage of program costs slightly reduced the average incentive received per customer. On the business side, completed solar projects more than doubled from 2016 to 2017, in part, due to the increase in project size cap from 4 kW to 8 kW. Table 10 below summarizes the total expenditures and completed projects for both the residential and business prescriptive solar programs between 2015 and 2017.

Table 10 Business and Residential Prescriptive Solar Expenditures, 2015-2017

	Incentive	Non-Incentive	Total Expenditures	Projects Completed	Average Incentive Payment
2015 Business	$55,421	$22,926	$78,347	25	$2,217
2015 Residential	$822,678	$325,130	$1,147,809	459	$2,151
2016 Business	$73,574	$32,319	$105,893	33	$2,230
2016 Residential	$1,079,824	$464,885	$1,544,709	551	$2,206
2017 Business	$236,506	$108,027	$344,533	74	$3,252
2017 Residential	$863,312	$465,443	$1,328,754	503	$1,759

Commission Alternatives – Renewable Budget

Alternative One is for the Commission to set renewable incentive funding at 2018 levels, which is approximately $5.5 million. This option has the benefit of keeping renewable funding consistent from year to year, which assists trade allies and customers with project planning over a longer timeframe. It appears that there is sufficient demand from the business sector for RECIP and prescriptive solar PV projects and residential solar PV to spend this amount, as the number of project applications has consistently increased over the current quadrennium. This alternative assumes that the impact of the solar tariff on projects within the Focus program will be minimal. This alternative also has an option for the Commission to consider allowing the Program Administrator the flexibility to adjust budgets between business and residential portfolios or between RECIP and prescriptive programs as the market dictates. For example, if RECIP demand declines, the funding could be reallocated to prescriptive renewable budgets as was needed with the business prescriptive program in 2017. This could assist the Program Administrator in making more timely decisions on RECIP rounds and other issues involving budget availability.

Alternative Two is to reduce renewable incentive funding to 2017 levels, which was approximately $3.2 million. This alternative assumes that the solar tariff will slow down demand for projects at least in the first 2 years when the tariff is higher. However, if demand does not slow, the renewables program may not be able to keep up with the demand for both residential and prescriptive solar or larger RECIP projects during the current quadrennium.

Alternative Three would postpone making a decision on renewable program budgets until the EERD study is completed in September 2018. This is appropriate should the Commission want to wait and see if additional information or options would present themselves as a result of the EERD project. However, this option would also delay planning for renewable

programs until late 2018, leaving uncertainty for customers and installers about funding, which they cited as problematic in the current quadrennium.

Alternative Four would increase renewable incentive funding to $6 million. This may be appropriate should the Commission approve a mid-size business renewable program, in which case, additional funding of approximately $500,000 would be needed to address this gap. This alternative also has an option for the Commission to consider allowing the Program Administrator the flexibility to adjust budgets between business and residential portfolios and between prescriptive and RECIP programs as the market dictates. As with other programs addressed in this section, funding would need to come from either core programs or carryover from rural programs, digester funds, or 2018 core programs.

Alternative Five would allow the Commission to set the amount of funding, either less than or greater than the amounts proposed in the prior alternatives.

Alternative One: Determine that renewable incentive funding shall remain the same as 2018 for the residential and business portfolios.

Additional Option: Allow the Program Administrator the flexibility to adjust budgets between business and residential portfolios and RECIP and prescriptive programs as the market dictates.

Alternative Two: Determine that renewable incentive funding shall be reduced to 2017 levels for the residential and business portfolios.

Additional Option: Allow the Program Administrator the flexibility to adjust budgets between business and residential portfolios and RECIP and prescriptive programs as the market dictates.

Alternative Three: Determine that a decision on renewable incentive funding shall be postponed until after the results of the EERD study are completed in September 2018.

Alternative Four: Determine that renewable incentive funding shall be increased to $6 million for the residential and business portfolios.

Additional Option: Allow the Program Administrator the flexibility to adjust budgets between business and residential portfolios and RECIP and prescriptive programs as the market dictates.

Alternative Five: Determine that renewable incentive funding shall be $_____ (amount selected by Commission).

B. Continued Review/Assessment of Anaerobic Digester System Program

In Quadrennial Planning II, the Commission allocated $6.4 million in Focus funds for "a dairy digester program" designed to explore the feasibility of installing anaerobic digesters on small- to medium-sized farms. (PSC REF#: 215245.) Focus issued a competitive Request for Proposals (RFP) for awarding those funds in 2015, and concluded that no proposed projects met the RFP's minimum requirements. The Commission subsequently concluded in its interim order of November 3, 2016, that it was reasonable to establish an interagency working group, led by the Executive Assistant to the Chair of the Commission, to develop another RFP without the "small to medium farm size limit" that focused instead on "the concept of concentrating biogas production by bringing together large and small farms in the same areas to achieve economies of scale in biogas production." (PSC REF#: 294032.) The Commission noted that pursuing an interagency effort reflected that digesters were "promising" not only for generating energy, but also to "address other challenges facing the state of Wisconsin such as manure management and water quality." (*Id*. at 10-11.)

In its Final Decision of December 20, 2016, the Commission authorized issuance of a joint RFP drafted by the interagency workgroup, encouraging applicants to propose "hub-and-spoke" digester networks built on partnerships between multiple farms in a geographic area, and between

the farms and relevant firms with expertise in digester engineering, construction, and operation. (PSC REF#: 295733.) The Commission authorized a budget of $20 million consisting of previously undesignated Focus funds to be made available for RFP awards. The Integrated Anaerobic Digester System Program RFP was issued on January 2, 2017, with proposals due by July 3, 2017. (DL: 1540941.) To be eligible for a funding award under the RFP, proposals were required to meet minimum point scores for digester arrangement, water treatment, nutrient management, and project location, as well as an overall minimum score of 235 points out of 350 points available.

Three applicants submitted proposals in response to the RFP. (PSC REF#: 331231.) An RFP Evaluation Team reviewed the proposals and recommended that the Commission award $15 million to BC Organics, LLC (BCO) for an integrated system in Brown County, Wisconsin. In its Final Decision of September 27, 2017, the Commission concurred with the Evaluation Team's recommendation and directed the Focus Program Administrator to award $15 million to support the Integrated Anaerobic Digester System proposed by BCO, with conditions "necessary to ensure the project is successful," including notice of acceptance of the award, obtainment of all necessary governmental permits, and quarterly progress reports to the Commission. (PSC REF#: 331578.) The Commission also evaluated alternatives for allocating the $5 million in budgeted RFP funds remaining after the award. The Commission concluded that the funds should remain with the digester program, but did not authorize an RFP or any other methods for awarding the funding as part of that decision. (*Id.* at 16.)

Remaining Digester Funds

Of the $20 million in Focus funds originally budgeted for integrated digester activities, $15 million remains obligated to BCO, and $5 million in unobligated funds remains budgeted to the digester program. In late 2017 and early 2018, Commission staff and other members of the

interagency workgroup received inquiries about disposition of the remaining funds from multiple parties interested in new integrated digester initiatives.

The information Commission staff has collected to date is sufficient to indicate that there are new projects under development that could meet the core goals and eligibility requirements outlined in the interagency workgroup's previous RFP. The new initiatives are continuing to develop integrated hub-and-spoke networks that integrate water treatment and nutrient management along with digester-based energy production. The new initiatives also follow BCO in projecting that network operations can maintain economic viability in part by producing renewable natural gas that can receive Renewable Identification Number (RIN) credits under the federal biofuels standard.

It is unclear, without close review of more detailed proposals, whether any new initiatives would be able to meet or exceed the interagency workgroup's minimum scoring criteria for awarding funds. Project cost-effectiveness under Focus standards, for example, could vary significantly based on the detailed production calculations in the final proposal and the incentive amount requested. As a reference point, Table 11 below compares the cost-effectiveness of BCO's revised proposal to other Focus activities, using the metrics provided by standard cost-effectiveness tests and by acquisition costs, a measure which compares the incentive amount awarded relative to the amount of energy saved. As proposed, BCO's project is more cost-effective than renewable projects as a whole by most metrics, primarily because biogas projects are typically more cost-effective than solar projects. On the other hand, BCO's project is less cost-effective than Focus activities as a whole when energy efficiency activities are included. Under the Utility Test and acquisition cost metric, BCO's project is approximately half as cost-effective as other Focus activities. Cost-effectiveness is comparable under the Modified TRC

Test because that test does not treat BCO's incentive as a cost, but rather as a transfer payment with no net effect on the state.

Table 11 BC Organics LLC Cost-Effectiveness vs. Cost-Effectiveness of Other Focus Projects

Metric	BC Organics Project	Focus Renewable Activities (2016/17)[1]	All Focus Activities (2016)
Benefit-Cost Ratio (Modified TRC)	$3.10:1	$1.09:1	$3.00:1
Benefit-Cost Ratio (Utility Test)	$4.80:1	$6.81:1	$7.61:1
Acquisition Cost	$1.20/MMBtu	$2.25/MMBtu	$0.77/MMBtu

[1] Modified TRC and Utility Test results are from CY 2016, the most recent period for which the evaluator has completed cost-effectiveness analysis. Acquisition costs are from the renewable energy projects awarded in 2017 under the RECIP program.

The cost-effectiveness of any new proposals cannot be confidently projected at this time. However, it is questionable whether those projects could substantially improve upon the cost-effectiveness of the BCO proposal given the costs required to operate all aspects of a large-scale integrated system. It is also possible that cost-effectiveness for other proposals could be significantly lower than the BCO proposals under certain proposed system designs. For example, under established Focus practice reflected in the previous RFP, projects that involve expanding production at previously installed biodigesters may only count as savings the marginal increase in production. BCO's proposal involves the construction of new digesters, allowing its benefits to include all system production. Future proposals that involve the expansion of existing digesters may find it more difficult to achieve comparable levels of credited benefits.

The amount of funding appropriate to support new initiatives is also highly uncertain. The existing budget of $5 million in Focus funds may be sufficient, or more than sufficient, to support limited-scale projects. For example, projects with relatively limited energy production may only be able to achieve acceptable levels of Focus cost-effectiveness at incentive levels much lower than $5 million. On the other hand, $5 million may be insufficient to support projects comparable in scale to the BCO proposal. An applicant may choose not to apply for, or accept, an award that does not provide enough financial support to make its project viable. Furthermore, if an applicant

does accept an award that represents a small share of overall project costs, the project is at increased risk of receiving a free-ridership penalty from Focus' independent evaluator. This penalty could reduce the net savings and cost-effectiveness credited to the project, possibly to the extent of allowing Focus to claim zero savings from the project.

Commission Alternatives – Digester Funding

Alternative One is to direct the interagency workgroup to develop and issue another joint RFP with the $5 million in Focus funds currently budgeted for the digester program. The Commission may wish to wait to issue the RFP if it wants to receive additional information on the final disposition of BCO's award, on the outcomes associated with BCO's implementation of an accepted project, or on other projects that may be eligible for awards prior to issuing the RFP.

Alternative Two is to direct the interagency workgroup to issue another joint RFP at an alternative funding level. Directing a lower funding level may be appropriate if the Commission anticipates that smaller-scale projects are most likely to be proposed. Conversely, directing a higher funding level could make it more likely that an RFP could adequately support large scale projects. Unallocated Focus funds may also be available if the budget for 2017-18 rural programs is not fully spent, although it is not clear at this time what amount of surplus rural funds may remain. In the absence of a surplus, allocating additional Focus funds would require the Commission to reduce funding for other ongoing Focus programs.

Alternative Three is to direct the interagency workgroup to report back to the Commission by April 30, 2019, on its recommendations for program design and funding levels. Deferring a final decision would delay any support of new initiatives. However, it would allow Commission staff and other members of the interagency workgroup to gather more information on potential new initiatives, and sources and amounts of available funding, including Focus sources as well as potential alternative sources for funding support.

Alternative One: Direct the interagency workgroup to develop and issue a joint RFP for integrated digester projects, with a budget of $5 million.

Additional Option A: Develop and issue the joint RFP as soon as practicable. The RFP will be returned to the Commission for approval prior to issuance.

Additional Option B: Develop and issue the joint RFP after Commission staff has analyzed additional information regarding the BCO award. The RFP will be returned to the Commission for approval prior to issuance.

Alternative Two: Direct the interagency workgroup to develop and issue a joint RFP for integrated digester projects, with a budget determined by the Commission. The RFP will be returned to the Commission for approval prior to issuance.

Alternative Three: Direct the interagency workgroup to gather more information and report back to the Commission on alternatives for future support of integrated digester projects by April 30, 2019.

C. Inclusion of Underserved Rural Areas

On September 1, 2016, the Commission opened docket 5-FE-102 to investigate the improvement of access to Focus programs by customers in rural areas of the state. (PSC REF#: 290951.) The Commission recognized that several challenges make it more difficult for programs to deliver services to rural customers. Areas with low population density typically have fewer service contractors, limiting Focus' ability to cultivate a base of affiliated contractors who can help market and deliver Focus services. Service to rural areas can often be costlier due to factors such as increased travel requirements for those contractors that do work with the program. Marketing and outreach can also be less effective and higher in cost due to lower media saturation in those areas.

Additional challenges specific to Focus' statutory design further contribute to the difficulty of serving rural areas. First, Focus is funded solely by electric and natural gas utilities, and therefore does not offer measures to reduce the consumption of other fuels used by many customers in rural areas, such as propane or heating oil. While most customers who use those other fuels remain eligible for Focus as customers of participating electric utilities, those customers may only receive Focus incentives and support for electric saving measures. Second, rural cooperatives (and municipal electric utilities) are not required to participate in Focus and may instead elect to run their own programs. At present, all 82 municipal electric utilities in Wisconsin and 11 of 24 electric cooperatives in Wisconsin participate in Focus. Customers of the 13 electric cooperatives who do not contribute funds to Focus, which are largely located in the northwestern quadrant of the state, are not eligible to participate.

The absence of adequate broadband service in rural parts of the state compounds these challenges. How customers receive the benefits of energy efficiency programs has changed over time as the markets and delivery mechanisms for energy efficient products and services has evolved with technological advances. Many energy efficiency products are marketed and sold online. In addition, the Federal Communications Commission National Broadband Plan has recognized the role broadband-enabled technologies can play in achieving energy efficiency. Numerous types of broadband-enabled devices are now available that allow customers to remotely control home appliances, lights, and furnaces to reduce energy consumption.

The challenges Focus faces in rural areas of the state have resulted in customers in rural areas, including areas underserved by broadband, tending to receive fewer benefits from Focus than customers elsewhere in the state. As part of the investigation, Commission staff identified 582 zip codes in Wisconsin that are considered rural by the census bureau and/or include a

significant share of census blocks that are eligible for federal grants to address broadband underservice, and compared their Focus participation to customers in other, more urban zip codes. (PSC REF#: 295733.) Residential customers in single-family homes in the 582 rural zip codes received an average of $3.13 per person in Focus incentives compared to $5.45 per person in the rest of the state. Based on this data, the Commission concluded that there were barriers to the creation and participation in markets for energy efficient products and services in rural areas of the state, including those areas underserved by broadband. As a result, the Commission determined that $27.7 million should be allocated for specialized programs designed to serve customers in those zip codes. It also determined that the rural programs would be included with the other core Focus business and residential programs for evaluation purposes, but would be separately tracked for reporting purposes. The Commission approved the following programs and funding allocations. Program details and results to date are described below.

Table 12 Rural Programs and Budgets Approved by the Commission

Program	Budget
Connected Device Kits	$16 million
Communications Providers Initiative Program	$4 million
Direct Mail Home Assessment Pilot Program	$283,000
Rural Home Performance	$1,100,000
Rural Community Small Business Offering	$3,170,000
Digital Customer Engagement for Business Pilot	$580,000
Rural Customer Outreach and Engagement	$867,000

Results to Date

The Rural Broadband pilot programs outlined above were launched at various points of time in 2017 and are continuing to ramp up in 2018. While final evaluation results for each of the pilots will not be available until the 2018 evaluation work is scheduled to be complete in spring 2019, APTIM has been tracking progress to date and making adjustments to each

program as needed. The following sections provide a summary of outcomes to date and forecasts for achievement by the end of 2018 for each of the programs listed above.

Connected Device Kits

With the Connected Device Kits Program, customers in rural areas can sign up to have a kit of energy efficiency measures and program information delivered free of charge, providing opportunities to reduce their energy bill as well as learn about additional Focus opportunities to achieve greater savings. The Commission found it reasonable to have these kits delivered through a customer's communications provider or utility. Customers are able to select from three kit options that include broadband-enabled energy efficient products. Customers who pursue new or upgraded broadband service with their participating communications provider are eligible to also receive a $50 voucher for broadband service as part of the kit. The kit options are outlined in Table 13 below.

Table 13 Broadband Kit Options for Customers to Choose

Type of Kit	Contents
Connected Lighting Kit (free)	Philips Hue White Starter and a smart strip
Wi-Fi Connected Thermostat (free)	Emerson Sen/Si - UP500W
Smart Thermostat ($120 copay)	NEST or Ecobee 3

APTIM worked closely with each of the communications providers that volunteered to participate by providing in-house training on the broadband-enabled devices and providing a wide array of co-branded marketing materials.

Each Communications Provider was asked to estimate how many kits they expected to distribute, and each kit was given a unique identifier code for tracking purposes. As of March 14, 2018, just over 1,000 kits were redeemed by customers. Of this total, approximately 55 percent were for the connected lighting kit, 30 percent for Wi-Fi thermostats, and 16 percent for smart thermostats (requires a $120 co-pay). There are currently ten active communication providers

participating including: Vernon Communications Cooperative; Lakeland Communications Cooperative; Lemonweir Valley Telecommunications – Lynxx; Reedsburg Utility Commission; Nsight; Cellcom; Amherst Communications; Northwoods Connect; Richland Grant Telephone Cooperative; and LaValle Telephone Cooperative.

Several challenges have impacted results to date. First, there is a natural ramp-up when working with a new group of delivery providers. Therefore, onboarding and campaign launch timelines are significant given each provider is different in terms of its targeted customer territory. This translates into significant administrative costs associated with getting each of them ready for the campaign. Second, and related to the first, most of the ten participating providers have had to "scrub" mailing lists to take out non-participating cooperative customers. There are at least two providers to date that decided not to participate because a portion of their targeted market was served by non-participating cooperatives. Finally, some providers offer similar connected products directly to customers as part of their "home automation/home security" service lines and see this offer as either competition or duplication.

APTIM continues to work with participating communications providers to deepen program engagement with customers through refreshed marketing materials. All providers currently participating have expressed their desire to continue running this program throughout 2018. APTIM is also continuing to work with the Wisconsin State Telecommunications Association (WSTA) to present information on the offering at marketing conferences and other venues to encourage new providers to participate. At the February 2018 WSTA conference, four additional communications providers indicated they were interested in participating.

In an effort to see if an alternative delivery mechanism will lead to the distribution of additional kits, and to overcome the challenges discussed above, APTIM began extending access to the kits through eligible utility partners beginning in January 2018. To limit market confusion and

target eligible rural customers, APTIM is working closely with select utilities throughout first quarter 2018 to release messaging in alignment with this program offering. Utilities with service territories in which all customers are eligible and those that do not have participating communications provider offerings available in their market area, will be eligible for the first phase. Utilities on the first quarter target list include: Clark Electric Cooperative; Price Electric Cooperative; Dahlberg Light and Power Company; St. Croix Valley Natural Gas Company; Taylor Electric Cooperative; Superior Water, Light and Power Company; and Sturgeon Bay Utilities. As of March 14, 2018, approximately 865 kits have been ordered by utility customers. Of this total, approximately 37 percent were connected lighting kits, 19 percent were Wi-Fi thermostat kits, and 45 percent were smart thermostat kits.

In parallel to launching through the utilities partners listed above, APTIM is working closely with larger utilities to determine an appropriate communication strategy for participation opportunities, given that not all customers in their territories will be eligible to participate. APTIM anticipates launching this phase later in second quarter 2018.

Communications Provider Initiative

Under this program, the Focus Business Incentive Program is targeting Communications Providers with locations in the 582 rural zip codes to complete energy efficiency projects. Focus Energy Advisors have been assigned to this customer segment to help implement projects that address specialized energy efficiency opportunities in the industry, such as softswitch retrofits and uninterruptible power supply systems, as well as more general opportunities related to lighting, heating, and cooling.

The Business Incentive Program had not targeted this industry before, and much has been learned about how these facilities and decision makers function. For example, the Focus program implementer has worked to adjust standard Focus project development practices to

address several specialized characteristics of the industry, including the fact that forecasting is somewhat uncertain due to the small target market, and that the typical capital project cycle is longer than in most other industries. It has also been a learning process for the communications providers as they gain a greater understanding of how Focus can assist them on projects. To date, this initiative has resulted in 2 paid projects with 30 projects in various stages of completion for an estimated savings of 433,000 million British thermal units (MMBtu), or 34 percent of the 2-year (2017-2018) goal. Of the 433,000 MMBtu, 340,000 are anticipated from large communication providers (members of the National Internet and Television Association (NCTA)) and 93,000 MMBtu from small providers (members of the WSTA). This initiative has a preliminary forecast of a 50/50 split of savings from small versus large providers at the end of the pilot. In addition, some of these providers who learned about Focus through this initiative have since signed on for the connected kits program as well.

Efforts to continue engaging this sector will continue in 2018. Plans call for a strong push to help those communications providers receiving federal broadband grants to focus on incorporating energy efficiency into their project decisions, as well as engagement with other providers to offer technical assistance for their projects. Focus program staff project that these increased efforts will result in the program spending 95 percent of its incentive budget and achieving approximately 80 percent of its savings goals by the end of 2018. Current efforts will also likely generate demand and a project pipeline for 2019 and beyond, suggesting that Focus business programs could continue to provide expanded services to this sector after the pilot is complete.

Direct Mail Home Assessment Pilot Program

The purpose of the Direct Mail Home Assessment Pilot is to help customers identify energy-saving opportunities in their home and thereby encourage Focus participation to address

those opportunities. To this end, approximately 100,000 homeowners in rural communities were mailed a self-assessment survey, prompting them to evaluate and record specific aspects of their homes that relate to its energy use. An 18 percent customer response rate was realized and a customized assessment of the results was prepared for customers. This response rate is very good by standards of direct mailing campaigns in general, and compares favorably to other states who have used this method. Approximately 4,000 customers participating in the Direct Mail Home Energy Assessment Pilot with building envelope improvement needs identified, have been targeted with a mailing to encourage participation in Home Performance with a $300 incentive toward an energy assessment. Recipients had through January 2018 to have the assessment completed and 60 days to submit the paperwork, so results are pending. APTIM will continue to use data from this survey to target rural customers for follow-up offerings.

Rural Home Performance Program

The Direct Mail Home Assessment Pilot is providing leads for the Rural Home Performance Program based on the survey results. Under this program, rural customers in eligible zip codes will receive incentives for improvements to their home's envelope, as well as incentives for high-efficiency heating and cooling equipment. To encourage Trade Allies to better serve rural customers, Trade Allies will be eligible for travel incentives based on mileage traveled to those customers. In addition, all rural customers are eligible for incentives for a furnace tune-up and smart thermostat bundle. The combined measure gives the Trade Allies a selling point to market to their maintenance services and generates additional savings for the program compared to a smart thermostat alone.

Community Small Business Outreach

The Small Business Rural Program is an extension of the core Small Business Program, and targets specific rural communities to encourage participation and increase awareness among qualifying customers and rural Trade Allies. The program leverages increased customer incentives, Trade Ally bonuses, and a high level of outreach, including significant utility coordination and a week-long door-to-door campaign in each community. Qualifying customers include businesses with an average monthly usage of 40,000 kWh or less during the months of July and August. This initiative was launched later in 2017, as a considerable amount of time was spent coordinating with community organizations and utilities in advance of launching the program. Communities targeted (based on geographical distribution and utility territory) in 2017 include: Cross Plains; Siren/Grantsburg/Balsam Lake; Solon Springs – Minong-Poplar; Superior; Antigo; and Couderay/Ojibwa/Radisson/Winter. In 2018, program efforts will begin in Rice Lake and Green Lake. An additional 16 communities have been identified, and Focus staff is working with the utilities in those areas to determine launch dates.

The community approach was selected because chambers of commerce, community groups, and local utilities are commonly viewed as trusted sources of information by small businesses that may not have heard of the Focus program. Thus far, Focus engagement has been positively received by the above-listed groups as well as the new Trade Allies who have enrolled in the program. Program staff has already made adjustments to increase uptake. Beginning in 2018, self-install kits specific to Restaurants/Taverns, Office/Retail, and Other Small Business Spaces will be included to help bring instant benefits to customers while educating them on additional program opportunities. The contents of the kits can be seen in Table 14 below.

Table 14 Self-Install Kits, Measure and Quantity by Business Type

Measure	Restaurant/Tavern	Retail	Office	Other/All Electric
9 W LED Lamps	3	2	2	2
Bathroom Aerator	2	1	2	-
Exit Light Retrofit	2	2	2	-
Kitchen Aerator	2	-	1	-
Pre-Rinse Sprayer	1	-	-	-
11 W BR 30 LED		2	-	1
7 Outlet Smart Strip			1	1

While less than 2.0 percent of overall MMBtu targets have been realized to date, the offering is anticipating a significant rise in participation in 2018 through more community events and utility participation, and it is expected to meet its forecasted 2-year MMBtu goal. APTIM believes that there is market potential for this program since more communities can be added during 2018 assuming budget is available. If this community-based approach to small businesses shows positive results, it could be incorporated into the core small business program beginning in 2019.

Digital Customer Engagement Platform

First Engage platform, a product of FirstFuel, provides small- and medium-sized business customers in Wisconsin Power and Light Company's (WP&L) service territory with a customized online energy usage dashboard that allows customers to analyze their energy use and identify savings opportunities available through Focus. Project launch has yet to occur due to the substantial time needed to arrange for the data sharing procedures between the implementer, FirstFuel, and WP&L. Data transfer testing and the first data extracts are expected to begin in first quarter 2018. The project launch is now planned for early in second quarter 2018.

Rural Customer Outreach and Engagement

The rural customer outreach and engagement is of particular interest since it has potential to influence core Focus programs as well as those targeted in the 2-year pilot. APTIM used more

traditional approaches for outreach in rural areas in 2017, which included television spots using Wisconsin Public Television, print media, and radio ads. However, during the last quarter of 2017, in order to increase rural outreach, APTIM used outreach funds to contract with two creative agencies to enhance Focus' brand positioning and messaging with rural customers. Two agencies were selected because one specializes with residential customers and the other with business customers. The rural outreach and engagement campaigns were designed to increase awareness of Focus and its program benefits to rural Wisconsin residential and business customers.

Two campaigns will be run in 2018, one focused on residential customers and the other on select rural business customer segments. Research into "personal data" of Wisconsin rural residents indicates there are three primary audiences with similar cultural, political, economic, and emotional characteristics. The residential campaign will target these audiences leveraging preferred media channels and various content strategies. Customized content will be delivered through a mix of online video, direct mail, and streaming audio messages. The rural business campaign will be targeted specifically at agribusinesses, manufacturers, and small to mid-sized commercial industrial park businesses. Each business segment has unique drivers, and the campaign will refresh the message about the benefits of reducing energy waste and leverage what influences each of these segments. It will use various media channels to deliver customized content for each of the segments.

Commission Alternatives – Rural Program

Commission staff has developed four alternatives for the Commission to consider. Regardless of how the rural programs are structured, funding would come from one of three sources: (1) core Focus programs; (2) carry-over from rural broadband programs; or (3) digester funds. With the latter two funding sources, there is uncertainty as to how much funding will be available.

Alternative One is for the Commission to determine that rural programs should be folded into core Focus programs but set a floor on expenditures targeted to specific rural programs. In addition, specific metrics could be developed to track rural participation and these metrics can become a contract goal or performance measure. By setting a floor for expenditures, this alternative offers transparency regarding resources dedicated to this effort. It can also slightly increase administrative costs due to the time spent by the Program Administrator to record, track and manage to two different budgets. It also presents the possibility of having to return the issue to the Commission if the expenditures are either exceeding the budget, or lagging significantly. When looking at expenditures to date, projected expenditures and the ability to fold certain programs into core programs, a floor of $5 million could be reasonable. The Commission could also select a different amount.

Alternative Two is to continue to emphasize rural programs in the next quadrennium, fold them into their respective core programs where applicable, but not set a specific floor. The Program Administrator can take lessons learned in the pilot through fall 2018 and develop appropriate budgets and program designs to move rural programs forward. Specific metrics can be developed to track rural participation and these metrics can become a contract goal and/or a performance measure. This alternative provides flexibility for the Program Administrator to use knowledge gained in the pilots and design programs to meet rural customer needs and shift funds across programs (rural and core) where applicable. This would also ensure that program planning can proceed in a timely fashion, with rural programs available beginning January 1, 2019.

Alternative Three would be to determine that rural programs should remain separate from core Focus offerings, rather than be folded into core offerings, and carry a defined expenditure level of $5 million. While this alternative may provide more visibility for rural programs, it also slightly increases administrative costs since there are two separate sets of budgets and savings to

track and report on. In addition, while a defined expenditure level underscores a commitment to rural programs, it could be more of a challenge to move funds where needed (from rural to core or core to rural) as was mentioned in Alternatives One and Two above. However, a decision to continue to treat the rural programs separately from core Focus offerings would be consistent with the Commission's prior decisions.

Alternative Four would be to wait until more information on pilot results are available. Should the Commission want rural programs to begin on January 1, 2019, additional Option A under this alternative, would direct Commission staff to report back by November 1, 2018, with the latest information upon which to base a decision on future rural programs. However, this decision would also delay planning for the core business and residential portfolios since the Program Administrator would not have certainty on rural program allocations. Additional Option B would delay a decision until evaluation results are available in May 2019. While this option may provide more definitive information on rural pilot results, it would also mean there would be no rural programs for an extended period of time in 2019, or perhaps all of that year. This is because core program budgets would need to be established for 2019, and it would be difficult to make significant changes in the middle of a program year.

Alternative One: Determine that rural programs can be folded into core Focus program offerings, but set a floor on expenditures of $5 million or another amount determined by the Commission to be targeted to specific rural programs.

Additional Option A: Report back on appropriate funding levels by November 1, 2018, after more information on program outcomes is available.

Alternative Two: Determine that rural programs can be folded into core Focus program offerings and track rural participation going forward as a contract goal/performance measure.

Alternative Three: Determine that rural programs should remain separate from core Focus offerings with a defined expenditure of level of $5 million or at another amount determined by the Commission.

Additional Option A: Report back on appropriate funding levels by November 1, 2018, after more information on program outcomes is available.

Alternative Four: Determine that more information is needed on the results of pilot programs before making decisions.

Additional Option A: Commission staff report back by November 1, 2018, with more information.

Additional Option B: Commission staff report back in the spring of 2019 after evaluation results are in with more information.

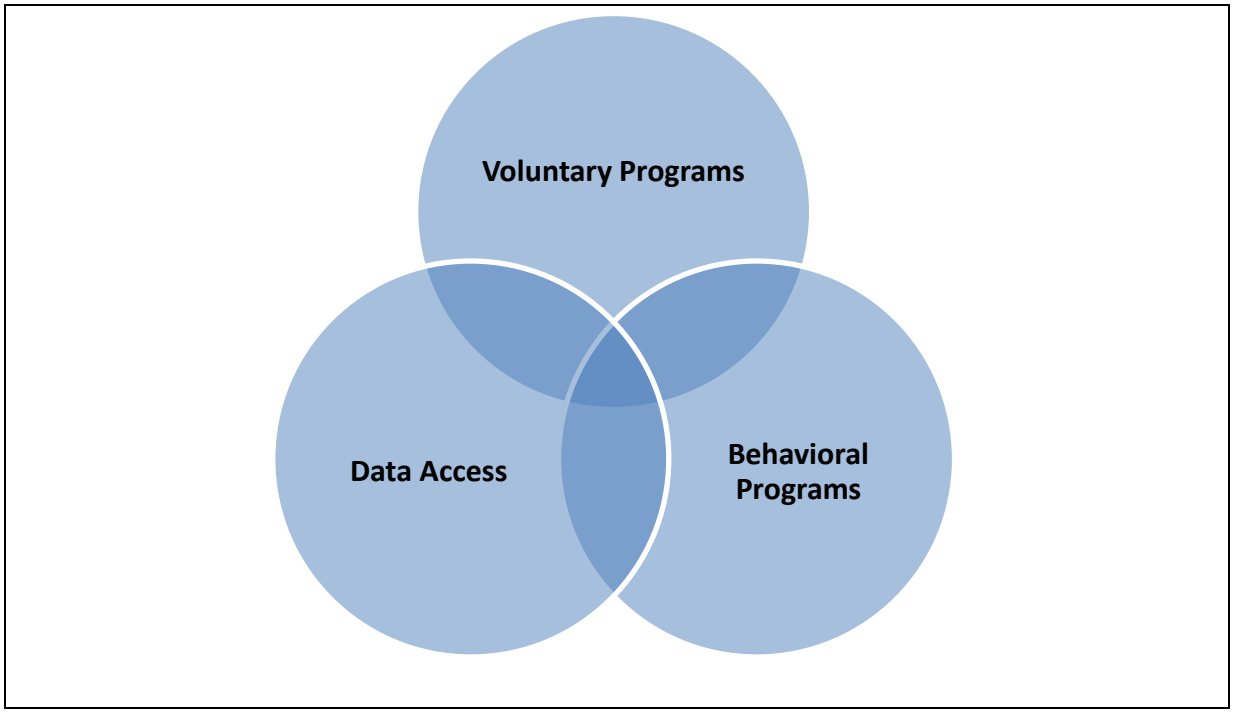
IV. FOCUS-UTILITY COLLABORATION ISSUES: BEHAVIORAL PROGRAMS, ACCESSIBILITY OF DATA, AND UTILITY VOLUNTARY PROGRAMS

The Commission's Final Decision set the scope for this quadrennial planning process's grouped behavioral programs, accessibility of data from participating utilities, and utility voluntary programs as "Other" issues outside of the established topic. (PSC REF#: 333103.) Subsequent research and stakeholder discussion have led Commission staff to conclude that all three issues should be reviewed within a shared context: defining appropriate policies and practices for collaboration between Focus and participating utilities. Activities in all three areas require substantial roles for staff at both the utilities and the Focus program. As a result, the effectiveness of each activity is influenced by how both parties work together to determine goals and priorities, share information, develop plans, and implement programs. Utility and Focus staff have already recognized this significance and have enhanced their working relationships in recent years. However, options exist for further development and definition of this collaborative relationship,

and the Commission may wish to consider whether those options are appropriate for addressing behavioral programs, data accessibility, voluntary programs, or Focus program activities more generally.

Figure 1 below shows the general intersection of the three issues addressed in the scope. The first section below outlines overall considerations for Focus-utility collaboration that address the intersection between all three issues, in the middle triangle of the figure. The section also notes that enhancing collaboration to address these three scope issues also could benefit other program opportunities. The following sections address how each of the three circles individually relate to the general collaborative framework, and provide analysis on issues specific to each topic that remain in the non-intersecting portions of the figure. The alternatives presented for each issue include options should the Commission approve a general framework for collaboration, and options should the Commission not approve the general framework.

Figure 1 Defining Appropriate Policies and Practices for Collaboration between Focus and Participating Utilities



A. General Framework for Focus and Utility Collaboration

Under Wis. Stat. § 196.374(2)(a)1., investor-owned utilities (IOU) are required to fund the Focus program and establish a contract "to develop and administer" Focus. Under Wis. Stat. § 196.374(8), an IOU "in any year is considered to have satisfied its requirements" if it meets the statutory requirement to contribute 1.2 percent of its retail operating revenues for annual funding of Focus programs. Additional statutory provisions authorize optional activities, which many utilities do carry out. Three IOUs have chosen to operate voluntary programs with funds in addition to their Focus contributions, and all 82 municipal utilities and 11 of the 24 electric cooperatives in the state currently participate in Focus rather than operate their own energy efficiency and renewable resource programs.

In practice, Focus and utility staff have found it mutually beneficial to collaborate on many aspects of daily program operations. For example, the Focus Program Administrator provides regular monthly reports to each participating utility regarding participation of its customers in Focus, and a utility representative typically serves on the bid scoring committee for each program implementation and research subcontract issued by the administrator. Focus and utility staff also collaborate to ensure that the marketing and customer outreach activities carried out by both parties are coordinated. Engagement in program operations can help ensure Focus decisions meet utility expectations, and that utilities can benefit from using Focus as a vehicle to improve their relationships with their customers and gather information on customer preferences and energy use. Focus and utility staff can both benefit from using the expertise, data, and experience of the other to inform their activities, and avoid duplication of shared responsibilities, such as customer outreach.

As these working relationships have solidified, Focus and the utilities have identified opportunities to use these relationships as a foundation to provide enhanced programming and

outreach. Two new utility voluntary programs in 2018 reflect this progress. Northern States Power Company-Wisconsin's (NSPW) Mid-Market Program has hired additional utility staff to help increase awareness of Focus programs and improve project development support to small and mid-size business customers, and has worked closely with Focus business programs to establish operating protocols for ensuring customers receive integrated service from both sets of staff. (*See* PSC REF#: 331185 and PSC REF#: 334362.) WP&L's pilot program to install Sense Home Energy meters on 100 customer homes was developed and implemented in partnership with the Focus Program Evaluator, to test whether the collection of real-time energy usage information can enhance Focus participation, support future development of statewide Focus program offerings, and help WP&L assess the potential impact of future implementation of time-of-use rates and demand response initiatives. (PSC REF#: 331918.)

However, additional opportunities exist which would likely require even greater collaboration to pursue, and require Focus and utilities to address new questions. Behavioral programs, which are designed to achieve energy savings by providing customers information on their energy use, exemplify the range of new collaborative considerations. The Focus Program Administrator has not implemented large-scale behavioral programs to date, but it has become increasingly clear that those programs present future savings opportunities. The Focus potential study concluded that behavioral programs account for a significant share of future residential energy savings potential, consistent with the growing prevalence of those programs in other states. Because behavioral programs commonly require access to detailed utility usage data, Focus programs would likely require significant investments across participating utilities to develop data-sharing arrangements. Allocation of those costs would also be uncertain; by combining energy savings with information, behavioral program models complicate the historical distinction the Commission has set between information, research, and education activities to be funded by

utility Customer Service Conservation funds, and energy-saving programs funded through the Focus portfolio. (PSC REF#: 168310.) Data-sharing challenges would be reduced if utilities chose to implement their own behavioral voluntary programs, as WP&L has done with the Sense meter pilot. However, this could lead to differences in program opportunities between customers of different utilities and make it more difficult to fully achieve statewide behavioral savings potential.

Other program opportunities also raise new considerations for defining the roles of Focus and utility staff.

- Focus and utilities both have a growing interest in researching new energy efficiency program models and technologies that could benefit customers, as increasing market saturation limits future savings opportunities for historically popular measures such as residential furnaces. Identifying and disseminating relevant information on the range of opportunities would benefit from intensive communication between Focus and utilities, as well as among different utilities. Testing of those opportunities could also take place through multiple channels with different implications for program design and funding—from traditional statewide Focus programs and regionally targeted Focus pilots to utility voluntary programs and customer service conservation-supported research.

- Focus marketing efforts have recently expanded in connection with the Commission's effort to support rural areas underserved by the program (see Section 3). More generally, marketing techniques available to both Focus and utilities have become more sophisticated as increasing volumes of data have allowed programs to understand customer preferences in more detail and support targeted outreach and programming. This increase in the scale and sophistication of

marketing efforts can increase the value of ensuring the effective utilization of the data available to both parties and coordinating marketing plans to efficiently deploy resources and limit duplication. It also reinforces the importance of clearly distinguishing staff roles and spending responsibilities.

- Load management and demand response programs, which encourage customers to reduce demand during peak periods, have also attained increasing prevalence and impacts across the country. Programs in Wisconsin must be utility run: Wis. Stat. § 196.374(1)(d) excludes load management from the definition of energy efficiency programs that can be operated by Focus. However, programs in other states often combine load management and efficiency offerings, which could potentially be supported through a Focus-utility partnership. Wisconsin utilities who are increasing their own load management activities could also benefit from coordination on established Focus offerings relevant to load management, such as smart thermostats.

Staff at the Commission, utilities, and Focus have recognized and discussed these issues. They have also found it challenging to define general solutions to addressing these collaborative issues, primarily because the requirements for effective collaboration may vary greatly in specific cases. Behavioral programs can again serve as a representative example. Numerous behavioral program models exist which present different data requirements; the costs and logistics involved in establishing data-sharing for a Focus behavioral program could vary widely based on which model is used. Utilities can also vary among themselves in their existing data-sharing capacities, the resources they have available to expand their capacities, and in their priorities for serving their customers. Any general policy statement as to whether and how Focus should pursue behavioral

programming is difficult to reconcile with such significant variation. Establishing specific requirements for the types of behavioral programs to be pursued, or the utility responsibilities for participating in those programs, risks limiting flexibility in program development and placing greater burdens on some utilities more than others. Establishing more general requirements could reduce that risk, but create its own risk of providing insufficient guidance to effectively support program design and staff responsibilities.[23]

These complications have led staff from all parties to conclude that developing a *framework for the process of ongoing collaboration* may be more successful in achieving future progress than defining any requirements for program designs or outcomes. A framework that supports more enhanced and formalized communication between Focus and the range of participating utilities could serve as a structure to identify the full range of available collaborative opportunities, and collectively make case-by-case decisions on how to proceed with those opportunities. For instance, this framework could facilitate continuing discussion between Focus and utility staff to identify the full range of behavioral program approaches, analyze the costs and benefits of each to Focus and each utility, and identify opportunities to proceed with programs for which an effective collaborative arrangement can be determined. Similar efforts could be made to address pilot programs, load management programs, marketing plans, and other types of collaborative opportunities. For example, discussions could consider whether program options that are of interest to Focus and utilities would be most appropriately implemented as Focus programs, customer service conservation activities, or utility voluntary programs. In the latter case, the

[23] Focus has faced challenges in implementing general Commission guidance on behavioral programs before. In its Order of June 12, 2009, under docket 9501-GF-101, the Commission ordered utilities throughout the state to "release customer-specific information to Focus on Energy for the purpose of improving the delivery of" Focus programs, "contingent on Focus on Energy entering into an agreement with the releasing utility." (PSC REF#: 115210). Commission staff and Focus staff did not finalize any agreements with releasing utilities after the order, in part due to the difficulty of finding agreement on the exact terms of the data request and program purposes for which the data would be used.

collaborative framework could support the preparation of voluntary program proposals for Commission approval.

While communication between Commission, utility, and Focus staff does occur at present, formal processes are not in place to structure regular discussion, to provide guidance for which issues should be prioritized for discussion, or to set expectations for the outcomes of collaborative communication. Establishing a formal Focus-utility collaboration framework as part of the quadrennial plan would be appropriate if the Commission concludes it is a reasonable approach to address the range of items which include: behavioral programs; data access; and/or voluntary programs. Establishing a framework would also be appropriate if the Commission believes enhanced collaboration has more general benefit to Focus and its participating utilities.

If the Commission does choose to direct the establishment of a formal collaborative framework, it can consider whether its order should include further details to define an appropriate collaborative framework. The sections below outline three types of guidance that could inform the framework: (1) its purposes; (2) the structure of its meetings and operations; and (3) establishing general guidance regarding appropriate roles for Focus and utility staff. The proposed guidance below reflects input from Focus and utility staff, as well as Commission staff's suggestions for necessary components of an effective framework. The Commission's selection of an alternative can be informed by its views on the proposed guidance.

Proposed Guidance for a Collaborative Framework

1. Purposes of the Framework

The general purpose of the framework is to maximize the mutual benefits to Focus and participating utilities of a collaborative working relationship to implement energy efficiency and renewable resource programs. Activities carried out by utilities—such as voluntary programs and customer service conservation activities—can ensure they receive the benefit of the expertise,

experience, and administrative capacity possessed by Focus staff. Focus programs can be designed to reflect utility priorities, and where feasible can take advantage of utility data, resources, and customer relationships to improve customer experiences and implement the program as efficiently as possible.

To meet this general purpose, participants can use the framework to:

- Improve the quality and detail of Focus program data available to utilities, and utility data available to inform Focus planning and implementation.
- Identify new and innovative program ideas, and determine the appropriate roles for Focus, utilities, and Commission staff in designing and implementing each individual program.
- Ensure Focus and utility marketing and programming activities are coordinated to maximize the efficient use of resources and provide maximum value to eligible customers.

2. Structure of the Framework

A steering committee for the framework could be established to take primary responsibility for managing the collaborative framework. The committee can include representatives of Commission staff, the Focus Program Administrator, the Focus Program Evaluator, and participating utilities. Multiple utility representatives should be selected to ensure representation from utilities of different sizes and types (investor-owned utilities, municipal utilities, and electric cooperatives), and that serve different geographic regions of the state.[24] Steering committee

[24] Utilities can consider connecting their membership with existing collaborative frameworks, but may also want to take into account that no single framework represents all utilities that participate in Focus. For example, the Wisconsin Utilities Association (WUA) represents a number of utilities, but its members do not include all investor-owned utilities, nor municipal utilities or electric cooperatives. The Statewide Energy Efficiency and Renewables Administration (SEERA), which contracts with the Program Administrator, represents all IOUs, but

members from the organizations above should consider whether participation in the framework should be expanded to include other Focus staff—such as program implementers or subcontractors—or outside stakeholders.

The steering committee could meet at least four times per year in order to ensure ongoing progress towards enhancing Focus-utility collaboration. The committee may find it beneficial to form one or more working groups which can meet separately to address specific collaboration topics, such as marketing, behavioral programming, voluntary program planning, or other topics identified by participants.

3. Defining Appropriate Focus and Utility Roles Within the Framework

Focus and utilities may play different collaborative roles on different projects. In determining appropriate roles, the following general criteria can serve as a starting point:

- Focus staff should play a lead coordinating role in activities intended to be delivered consistently statewide, such as core Focus programs and general Focus-related marketing.
- In taking this coordinating role, Focus staff should also seek to identify opportunities for integrating utility-specific initiatives within the statewide structure. A successful framework should also assist individual utilities in pursuing customized programs with the support of Focus staff.
- Piloting new and innovative program ideas with individual utilities can be a cost-effective approach to assess whether Focus could deliver them on a statewide scale in future years.

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does not include membership from municipal utilities or cooperatives. Separate organizations exist to represent municipal utilities and cooperatives that do not include membership from IOUs.

- Utilities and Focus should seek to continually improve access to information collected by the other party. In cases where data sharing may be excessively costly or difficult, collaborators should seek ways to use the data for programming and marketing through approaches that allow for collaboration without requiring data transfer.

Commission Alternatives – Collaboration Framework

Alternative One: A formal framework for enhanced collaboration between Focus and utilities shall be established, based on the guidance described in this memorandum.

Alternative Two: A formal framework for enhanced collaboration between Focus and utilities shall be established, with modifications to the guidance described in this memorandum.

Alternative Three: A formal framework for enhanced collaboration between Focus and utilities shall be established, with fully revised guidance for Commission review. By September 30, 2018, Commission staff shall provide a report to the Commission on alternatives for defining the purposes, structure and design of a collaborative framework, at which time the Commission will make a final decision on the design of the framework.

Alternative Four: Take no action.

B. Behavioral Programs

The Commission first addressed Focus' use of behavioral programs in Quadrennial Planning II. In its Final Decision of September 5, 2014, the Commission found it "reasonable for Focus funds to be used for residential behavior pilot projects." (PSC REF#: 215245.) The Commission added that any behavioral programs "should have a high bar for approval," since research to date on behavioral programs in other states remained uncertain regarding the amount of savings the programs could cost-effectively achieve and the persistence of program savings over

time. To assess individual programs against that standard, the Commission required Focus to submit individual program proposals for Commission approval in advance of implementation.

As noted in the Collaboration section, Focus has not implemented large-scale behavioral programs to date. In its Final Decision of April 27, 2016, the Commission approved a behavioral pilot proposed by the Program Administrator. (PSC REF#: 285314.) However, in its Final Decision of November 3, 2016, the Commission accepted a recommendation by Commission and program staff to forego implementing the program after the subsequent sale of the implementation contractor created uncertainties regarding whether the program could be successfully implemented. (PSC REF#: 294032.) In its Final Decision of December 20, 2016, the Commission approved as part of its rural programs package, a behavior-based digital customer engagement platform, in collaboration with WP&L. (PSC REF#: 295733.) As outlined in the section on Inclusion of Underserved Rural Areas, final project launch will not occur until spring 2018, in part due to the time needed to arrange data-sharing procedures between the utility and the implementation contractor.

These experiences demonstrate the implementation challenges associated with utility collaboration and data sharing outlined in the Collaboration section. Both behavioral pilots were designed to serve a single utility, and required detailed partnerships with the participating utility to arrange for data access. The time required to launch the digital customer engagement platform also reflects the level of effort that can be required to establish data-intensive behavioral programs. The collaborative framework outlined above is designed to provide a platform to assess these barriers and consider how Focus and utility staff can coordinate to design, fund, and implement behavior-based programs (as well as other program opportunities which face similar challenges). If the Commission chooses to establish a general collaborative framework, future behavioral programs could be addressed within that framework.

Research on behavioral programs in other states has expanded during the current quadrennium. This research has generally indicated that behavioral programs can achieve cost-effective savings, and that savings can persist for several years after a program is initiated. For example, in 2016, Lawrence Berkley National Labs (LBNL)[25] conducted a nationwide summary evaluation of outcomes from the Home Energy Report (HER) programs, the most common residential behavioral program design to date. HER programs attempt to motivate customers to change their usage behaviors by comparing their energy usage to similar customers nearby, offering options to improve their energy use, and encouraging them to improve their performance relative to their peers. LBNL's review of evaluated results from multiple programs found that participants in those programs consistently achieved significant energy savings after the program began. Those savings typically persisted when HER continued to be provided for multiple years at a time. In addition, participants' energy usage remained lower after they stopped receiving reports, although their energy savings began to diminish multiple years after reports ended.

Recent studies have also affirmed that savings can be achieved with real-time feedback programs. These programs provide customers with real-time information on their energy use through enabling technologies such as smart thermostats or energy management systems. For example, two recently completed studies on real-time feedback programs conducted in Connecticut and California found significant savings for all customers and savings were of greater magnitude than the typical savings from HER programs.[26] However, because most real-time feedback

[25] Lawrence Berkley National Lab, *Evaluation of Residential Behavior Based Programs*, September 21, 2016. https://emp.lbl.gov/publications/evaluation-residential-behavior-based.

[26] Connecticut: summarized in Robert Hahn and Robert Metcalfe (2016). The Impact of Behavioral Science Experiments on Energy Policy. Published by the Brookings Institute. https://www.brookings.edu/wp-content/uploads/2016/07/HahnMetcalfe-work-pap-eeep-616-v2.pdf.

California: summarized in Navigant Consulting (2015). Comprehensive Review of Behavior and Education Programs: Cross-Cutting Research in the Areas of Behavior and Education. http://ma-eeac.org/wordpress/wp-content/uploads/Comprehensive-Review-of-Behavior-and-Education-Programs.pdf.

programs have been implemented more recently than HER programs, evidence on savings persistence from those programs remains comparatively limited.

This increased confidence in behavioral savings achievement is reflected by the inclusion of behavioral savings in Focus' 2017 potential study. Evaluation staff responsible for conducting the study concluded that sufficient evidence was available on the savings and cost-effectiveness of residential behavioral programs to include it in the potential analysis, alongside more traditional energy-efficient technology offerings. Analysis of all offerings found that behavioral programs accounted for approximately 7 percent of total residential achievable savings potential. This was a larger share of potential than all other residential measure offerings except LED lighting, smart power strips, and appliance recycling, and by far the largest share of potential for any new residential measure not already offered by Focus.

Commission Alternatives – Behavioral Programs

Alternative One is to order that behavioral program development be addressed as part of the collaborative framework. If the Commission does not establish a collaborative framework, it could consider two other alternatives. Alternative Two is to authorize the Program Administrator to use Focus funds for behavioral programs during the quadrennium and no longer require Commission pre-approval. In that case, the Program Administrator would be able to determine whether to offer behavioral programs and how much funding to allocate to the program, consistent with their current responsibilities for core Focus programs. If the Commission believes pre-approval remains appropriate, Alternative Three would maintain the current requirement for Focus behavioral programs to be pre-approved by the Commission.

Alternative One: Behavioral programs shall be developed and implemented in connection with the framework for enhanced collaboration between Focus and utilities described in this memorandum.

Alternative Two: Focus funds may be used for residential behavioral pilots during the quadrennium, at the discretion of the Program Administrator.

Alternative Three: Focus funds may be used for residential behavioral pilots during the quadrennium. Any proposed behavioral program design shall be returned to the Commission for approval in advance of implementation.

C. Accessibility of Data from Participating Utilities

Focus' access to utility data was included as part of the scope of this investigation largely because of the recognized importance of energy usage data for operating behavioral programs. This importance is illustrated in Figure 1 above with "data access" and "behavioral programs" overlapping. The Focus Program Administrator does not have established arrangements for regular access to utility-maintained data on customer characteristics and energy usage, which is a primary reason why it has not operated statewide behavioral programs to date. Other opportunities for enhanced Focus programming and marketing could also be obtained through increased use of utility data. Data on customer characteristics could be collected and analyzed to support more targeted marketing of Focus programs to those customer types most likely to be interested. A growing number of programs in other states have started to use usage data to design programs targeted towards the highest-use customers because those customers often have opportunities to achieve greater amounts of savings than lower-use customers.

In many states, utilities design and administer their own energy efficiency and renewable resource programs, and therefore, carry out data-related program activities internally. Focus' comparatively limited use of utility data to date primarily reflects three complications associated with allocating program administration responsibilities to a third-party contractor. First, utilities must ensure compliance with legal constraints on releasing customer information to outside entities. All utilities in Wisconsin are responsible under state and federal law for maintaining

customer confidentiality, and municipal utilities in Wisconsin are specifically constrained by Wis. Stat. § 196.137 from releasing customer information without consent of their customers unless one or more named exceptions are met. Second, sharing data with third-party entities requires development of data security arrangements, including secure transfer protocols as well as arrangements for secure storage after transfer. Third, extracting and transferring utility data requires the investment of financial resources and staff time on the part of both the utility and the third-party recipient.

In contrast to the Program Administrator, Focus' evaluation contractor has established arrangements with utilities in recent years to access customer and usage data for the Focus Potential Study as well as several research projects on specific Focus programs. Reviewing the evaluator's experiences with data access and analyzing the similarities and differences that would be faced in establishing data access arrangements for program administration can inform assessment of the options for addressing future data access options.

To provide further assurance of compliance with confidentiality policies, the evaluator has upon request signed legal confidentiality agreements with individual utilities.

To ensure security of transferred utility data, the evaluator maintains security procedures for protecting confidentiality that must be consistent with the "safeguards of sensitive information" established in the Focus policy manual, including: transfer of data through a secure File Transfer Protocol (sFTP) site operated by the evaluator, practices for limiting staff access to confidential data, technical controls on the servers and computers used to store the data, and staff training on security protocols. Compliance with these and other policy requirements is enforced through regular compliance audits conducted by Focus' contracted compliance agent, Baker Tilly. Annual audits of the evaluator conducted to date have identified satisfactory compliance with all security

requirements. The Program Administrator is subject to the same security requirements and compliance audits as the evaluator.

The resources required for utilities to extract and transfer data to the evaluator have varied based on the parameters of each individual data request. However, all requests have imposed measurable staff costs and required weeks or months for participating utilities to complete. Generally, costs have been higher and timeframes longer for larger requests, such as the request under the potential study for a list of all customers served by the utility and summary data on their energy usage. The scope and scale of data required for program administration-based activities could similarly vary. For instance, updating customer lists one or more times a year to support marketing efforts would require some cost and effort on the part of each participating utility. But significantly greater resources, likely well in excess of the resources required to fulfill evaluation requests to date, would likely be required for utilities to enable the Focus Program Administrator to support data-intensive program designs. An example is online behavioral program platforms designed to provide customers with detailed, regularly updated data on their energy use. Different approaches to marketing or behavioral program design could also carry very different cost implications than those specific examples.

Commission Alternatives – Data Accessibility

Focus evaluators' experience demonstrates that the legal, security, and resource considerations associated with access to utility data can be satisfactorily addressed. Moreover, several aspects of the evaluation experience are applicable to expanding the Focus Program Administrator's data access. However, as noted in the Collaboration section above, the significant variety of options available for use of the data by the Program Administrator—and the parallel variety in cost implications for utilities and Focus—suggest that appropriate data access arrangements may differ widely between specific cases.

Accordingly, the Collaboration section provided an option for the Commission to establish a process framework within which Focus and utility staff can review and establish collaborative arrangements, including those related to data access, on a case-by-case basis. Alternative One is to determine that access to utility data by Focus staff be addressed through participation in the collaborative framework.

If the Commission does not support the establishment of a framework, or use of the framework as the primary forum for addressing data access issues, it can consider other alternatives. Alternative Two is to direct Commission staff to work with utility staff and the Focus Program Administrator to obtain Focus access to utility data when that access can be achieved at reasonable cost, outside of a collaborative framework. Alternative Three is to direct Commission staff to conduct further analysis on the benefits, financial costs, and other barriers associated with Focus access to utility data for future Commission consideration. Finally, Alternative Four is to take no action on the data access issue.

Alternative One: Arrangements for Focus access to utility data shall be addressed through the framework for enhanced collaboration between Focus and utilities described in this memorandum.

Alternative Two: Direct Commission staff to work with utility staff and Focus staff to identify opportunities to expand Focus access to utility data when that access can be achieved at reasonable cost.

Alternative Three: Direct Commission staff to conduct further analysis on the benefits, financial costs, and other barriers associated with Focus access to utility data and report its findings and recommendations to the Commission by November 1, 2018.

Alternative Four: Take no action.

D. Utility Voluntary Programs

Two issues are addressed under this subsection, the issue of Voluntary Programs and the Collaborative Framework; and whether to provide Guidance for Voluntary Programs.

Under Wis. Stat. § 196.374(8), an IOU that contributes its required funding to Focus "in any year is considered to have satisfied its requirements" for supporting energy efficiency and renewable resource programs. Under Wis. Stat. § 196.374(2)(b)2., however, an IOU "may, with commission approval, administer or fund an energy efficiency or resource program that is in addition to" Focus programs, using funds allocated in addition to its contributions to Focus.

Wisconsin Admin. Code § PSC 137.08 defines programs proposed under this authorization as "voluntary programs," and establishes parameters for Commission review and approval. In order to operate a voluntary program, an IOU must file a request "at least six months" beforehand, which in practice requires submissions by July 1 for implementation of programs in the following calendar year. Utilities must include as part of a request an evaluation plan, description of how program information will be tracked and reported, and "a description of how the utility will coordinate its voluntary program with" Focus programs. The Wisconsin Administrative Code also outlines a list of "factors" the Commission must consider "in deciding whether to approve a voluntary program," including the level of coordination with Focus, the adequacy of the evaluation plan and the proposed budget, the likelihood the program will achieve its goals, and the anticipated cost-effectiveness of the program.

To date, four IOUs have requested and received Commission approval to operate voluntary efficiency programs. Wisconsin Electric Power Company and Wisconsin Gas, LLC (together, We Energies) and NSPW have operated consistent voluntary programs from 2009 through the present, which provide "bonus incentives" to increase total financial support for participants in specified Focus programs. We Energies provides bonus incentives to make Focus' weatherization

services more affordable for low-income participants, while NSPW provides bonus incentives to residential customers and small and mid-sized business customers to address the financial, awareness, and knowledge barriers those customers face in pursuing Focus projects. WP&L has operated multiple different voluntary programs, including three programs in the current quadrennium:

- A behavioral pilot, *Alliant Energy Advisor*, was initiated in 2015. The program was discontinued as a voluntary program at the end of 2016 after evaluation determined that the program's limited savings achievement resulted in low program cost-effectiveness, but WP&L continued it as a customer service conservation (CSC) activity designed to enhance customer information and awareness on energy efficiency.
- Two new programs were initiated in 2018: (1) a bonus incentive program for low-income weatherization participants modeled on We Energies' program; and (2) a pilot to install Sense meters providing real-time energy usage information, to determine whether those meters could influence behavioral savings and increased participation in Focus programs.

Evaluations of We Energies' and NSPW's bonus programs have validated that the programs have been operated effectively and have achieved energy savings for participating customers. Although WP&L's 2015-16 behavioral pilot did not achieve cost-effective savings, the program has maintained value for the utility as a CSC activity, and the evaluation of the program has helped inform utility, Focus, and Commission staff as they review future options for designing and implementing behavioral programs.

The scale of voluntary program activity remains limited as a share of overall statewide activity. The combined budgets for the four 2018 voluntary programs total $3.5 million. By contrast, the 2018 Focus budget includes $99.6 million for operation of standard energy efficiency programs, $5.6 million for renewable energy incentives, and $47.3 million for additional programs, using surplus funds, to serve rural customers and support integrated anaerobic digester initiatives.

Moreover, programming opportunities exist beyond those already funded by Focus or existing voluntary programs. The Focus potential study found under existing Commission policies, total future statewide savings potential for both electric and natural gas savings is greater than the savings that could be achieved at Focus' established budget level. Also, as noted in the Collaboration section, Focus and utility staff are aware of numerous new programming opportunities beyond those currently offered by Focus, including behavioral programs, combined load management and energy efficiency programs, and other opportunities for new efficient technologies and delivery approaches.

In a number of cases, it may be appropriate for utilities to take the lead role in implementing these new opportunities. Data extraction and transfer requirements may make some behavioral program designs too costly or logistically difficult for Focus to administer. Utilities operating their own programs may find it more efficient to maintain responsibility for implementing energy efficiency or renewable energy programs that require significant customer data to implement. New and innovative program designs may benefit from being piloted by a single utility to assess whether they should be expanded to statewide Focus offerings in future years.

Voluntary programs serve as the available statutory authorization for utilities to lead such programs. Moreover, the process framework proposed in the Collaboration section could serve as a platform for identifying voluntary program ideas and coordinating their design and

implementation with Commission and Focus staff. Joint review of available programming ideas could support case-by-case decisions about which programs are most appropriate to operate by utilities, and utilities and Focus staff could work together within the framework to develop program proposals that draw on Focus expertise and meet the Commission's requirements for coordination with Focus programs. Use of the collaborative framework would still ensure Commission review, as Commission approval of voluntary programs is required under Wis. Stat. § 196.374(2)(b)1. The timelines of the collaborate framework could be designed to ensure the reviews occur in time for utilities to meet deadlines for proposing voluntary programs, and align as closely as possible with Focus' planning processes for related programs.

Commission Alternatives – Utility Voluntary Programs

Alternative One: Utility voluntary programs shall be developed and implemented in connection with the framework for enhanced collaboration between Focus and utilities described in this memorandum.

Alternative Two: Direct Commission staff to conduct further analysis on the benefits, financial costs, and other barriers associated with incorporating utility voluntary programs into a collaborative framework and report its findings and recommendations to the Commission by November 1, 2018.

Alternative Three: Take no action.

Guidance for Voluntary Programs

The Commission can also consider a second approach for taking further action on voluntary programs, which could coexist with a collaborative framework or stand on its own. At present, no guidance on the content of voluntary programs has been established by law or Commission action. The Wisconsin Administrative Code only identifies the types of information

to be provided in a program proposal—such as an evaluation plan and projected cost-effectiveness. By contrast, the Commission has issued more substantive guidance to define appropriate CSC activities in docket 5-BU-102. The Commission's Order of July 13, 2012, concluded that "establishing a definition for CSC and providing general guidelines regarding appropriate CSC activities and services will guide utilities in determining what CSC activities and services to offer and their appropriate funding level." (PSC REF#: 168310.) The Order specified that "appropriate CSC activities and services" include educating customers about effective practices for energy efficiency, improving customer awareness of energy efficiency opportunities, researching emerging technologies and program models, and encouraging customers to participate in Focus and other available programs.

Guidance on voluntary programs could provide similar support for determining program designs and funding levels, as well as for ensuring clear distinctions between CSC activities and voluntary programs. If the Commission incorporates voluntary program development in a collaborative framework, this guidance could be incorporated into the Commission's overall approved guidance for the framework. If the Commission decides not to create a general framework or include voluntary programs within it, similar guidance could still hold value for utilities who wish to propose voluntary programs through existing procedures. The proposed guidance below reflects experiences with voluntary programs to date, input from Focus and utility staff, and Commission staff's suggestions for providing clear guidance. The Commission's selection of a final alternative can be informed by its views on the draft guidance.

Proposed Voluntary Program Guidance

Utility voluntary programs can include energy efficiency programs to help customers reduce their energy usage or increase the efficiency of their energy usage, and renewable resource programs to encourage customer use of renewable energy technologies. Voluntary programs are

distinguished from customer service conservation activities by maintaining one or more of the following characteristics: (1) financial incentives paid to customers or market actors; (2) delivery of technologies or services that can achieve measurable energy savings attributable to the influence of the program; and (3) integration into the design of statewide Focus programs with financial incentives and measurable savings. Load management programs are excluded from the statutory definition of energy efficiency programs and may not be funded or operated as voluntary programs. However, energy efficiency offerings that are associated with load management or other non-efficiency programs operated by a utility, and that maintain the characteristics above, may be operated and funded as a voluntary program.

Educational, informational, or research activities that do not include any of the three characteristics listed above, remain appropriate customer service conservation activities, as defined by the Commission in its Order of July 13, 2012. (PSC REF#: 168310.) Because the statutory definition of renewable resource programs includes educational components, renewable education programs may be appropriate to operate as either customer service conservation activities or voluntary programs. Utilities may work with Commission staff to determine the appropriate approach for renewable education programs on a case-by-case basis.

Appropriate purposes for voluntary programs include: (1) increasing the savings and participation achieved by Focus programs by providing additional incentives, marketing, or staff support; (2) addressing the barriers to energy efficiency and renewable energy faced by specific customer groups; (3) increasing total energy savings achieved by the utility beyond the savings its customers have achieved through Focus programs; (4) piloting new and innovative programming activities that are not currently offered by Focus, to assess the future potential for larger-scale implementation of those programs; (5) implementing cost-effective programs that are not currently implemented by Focus due to lack of available budget or other limitations; and (6) implementing

programs that can be more effectively and efficiently implemented by a utility than by Focus' contracted administrator. Many programs may serve more than one purpose. Utilities may also propose additional purposes for voluntary programs in addition to, or instead of those listed in this guidance, which the Commission may consider in determining whether to approve the voluntary program.

Commission Alternatives – Voluntary Program Guidance

Alternative One: Establish guidance defining appropriate voluntary programs as described in this memorandum.

Alternative Two: Establish guidance defining appropriate voluntary programs, with modifications to the guidance in this memorandum.

Alternative Three: Establish fully revised guidance defining appropriate voluntary programs for Commission review. By November 1, 2018, Commission staff shall provide a report to the Commission on alternatives for the content of the guidance, at which time the Commission will make a final decision.

Alternative Four: Take no action.

V. ISSUES RELATED TO SETTING ENERGY GOALS

Under Wis. Stat. § 196.374(3)(b)1., the Commission's responsibilities in the quadrennial planning process include to "set or revise goals . . . and measurable targets for" Focus programs. In previous quadrennial plans, the Commission has set energy savings goals for the Program Administrator, updated from previous goal levels based on other information. Goals for the 2019-2022 quadrennium will be addressed in a follow-up memorandum to the Commission, which will propose alternatives for setting goals that are informed by the policy decisions the Commission makes in response to this memorandum. These goals can be informed by the results

of the Focus potential study, which included specific projections of savings potential for the 2019-2022 timeframe.

Before determining specific options for the value of energy savings goals, the Commission can address two issues related to the definition of those goals. The first is whether to continue setting goals for both electric and natural gas savings that are expressed in the combined metric of British thermal units (Btu), or only to set separate goals for electric and natural gas savings. The second issue is determining how energy savings should be defined for purposes of the Commission's energy savings goal, as well as the goals set for the Program Administrator in its contract. Commission staff will use decisions in both sections to determine how to present the goals for Commission's review in the follow-up memorandum.

Overall Energy Savings Goals and Specific Goals for kWhs, kW, and therms

In a memorandum dated October 7, 2013, Commission staff outlined the concept of an overall energy savings goal rather than specific goals for kWh, kW, and therms. (PSC REF#: 194100.) The overall energy savings goal was proposed as an option to address the impact that low natural gas prices were having on the Focus program's ability to achieve therm saving goals. Because historical achievement before 2011 was used to set goals for the 2011-2014 quadrennium, the change in market prices was not accounted for in the contract with the Program Administrator. The overall energy goal with the exchange rate concept was viewed as a way to provide flexibility for the Program Administrator in achieving goals that may have been set inappropriately, by allowing the Program Administrator to claim credit for achieving additional electric savings in the place of difficult-to-obtain therm savings.

The Commission accepted the use of an overall energy goal in its Order of February 6, 2014, which established the use of "an exchange rate to trade therms for kWh savings for the purposes of evaluating whether [the Program Administrator] has met its contractual goals."

(PSC REF#: 198182.) After analyzing historical program data for the business and residential portfolios, the overall conversion factor was decided as 13.5 kWh to 1 therm.

In its Final Decision of September 5, 2014, the Commission accepted the continued use of an exchange rate, and established a framework for further supporting the exchange rate by setting overall Commission energy savings goals in Btus, a general measure of energy use. (PSC REF#: 215245.) This allowed the Program Administrator to reach an MMBtu energy goal using a combination of therms and kWh above minimum therm and kWh thresholds. To minimize cross-subsidization between electric ratepayers and gas ratepayers contributing to Focus funding, the minimum thresholds were set so that 90 percent of the individual therm and kWh goals were required to be met, and only the remaining 10 percent of the overall Btu goal could involve the exchange of natural gas and electric savings. The overall energy goals, Gross Life Cycle Goals and Net Annual Goals can be seen in Table 15 below.

Table 15 Focus MMBtu, Gross Life Cycle, and Net Annual Goals[27]

	Life Cycle MMBtu	Gross Life Cycle Goal	Net Annual
Electricity	113,163,159	33,166,224,930 (kWh)	2,329,563,248 (kWh)
Natural Gas	157,803,681	1,578,036,811 (therms)	76,427,892 (therms)
Overall MMBtu Goal	270,966,840	-	-
kW Goal	435,345	435,345	329,465

The exchange rate provision for kWh and therms has not been invoked to date by the Program Administrator. The Program Administrator instead has used "bonus" offers on therm projects as well as competitive RFPs for large therm projects for Large Energy Customers to overcome slower therm goal achievement. Commission staff and the Program Administrator have found that the exchange rate provision does increase the complexity of goal tracking, since the Program Administrator still needs to track kWh, and therms along with MMBtu goal and the divergences between them can be time consuming to review, analyze and address.

[27] The Commission approved these goals in Amendment 4 to the SEERA-APTIM contract. (PSC REF#: 338759.)

Commission Alternatives – Savings Goals

Alternative One: Establish an overall energy savings goal. Minimum kWh and therm thresholds will be set equal to 90 percent of the overall goal.

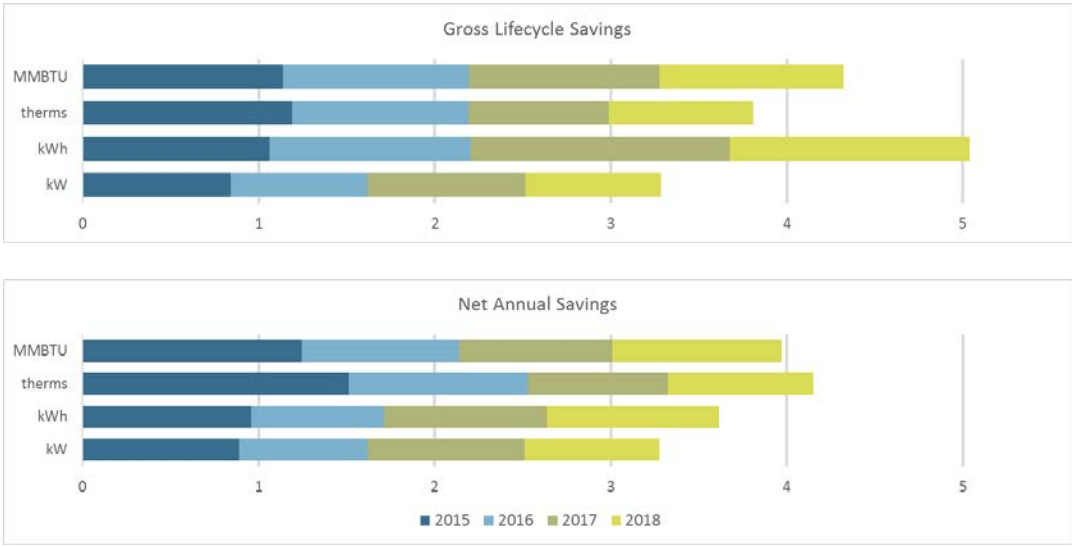
Alternative Two: Do not establish an overall energy goal and keep specific kWh, therm, and kW goals.

Commission and Program Administrator Goal Structures

Currently, as seen in Table 15, the Commission sets two types of goals with different definitions. The Commission's energy savings goal is set based on net annual savings. Annual savings reflect the savings achieved in a single year from an installed Focus project. Net savings reflect only those savings from Focus projects that can be attributed to Focus' influence, excluding savings from "free rider" participants who would have taken the same action without Focus' incentives and technical support (and adding "spillover" savings from non-participants that can still be identified as influenced by Focus activities). On the other hand, the Commission has also approved that the Program Administrator's contractual goals be set based on gross life cycle savings, which count savings from all Focus projects achieved over the full operating life of installed measures. In its Order of November 10, 2010, the Commission determined that both differences were reasonable to set appropriate contractual incentives. (PSC REF#: 141173.) While it is important to identify net savings in order to precisely assess the effects of the program, free-ridership is difficult for the Program Administrator to control, and aggressive program efforts to limit free-ridership may limit the overall quality of Focus' customer service. Setting life cycle savings targets encourages the Program Administrator to emphasize support for longer-lived technologies.

During the present quadrennium, the Program Administrator is on track to meet its MMBtu gross life cycle goal, but fall short of its Commission net annual goal, as seen in Figure 2 below.

Figure 2 Divergence Between Gross Lifecycle and Net Annual Goals



This divergence reflects the uncertainties involved in attempting to set two related goals using different metrics. For example, life cycle electric savings goals were calculated based on the average 11-year lifetime of measures observed during the 2011-2014 quadrennium. However, due to life cycle-based contractual goals, the Program Administrator achieved an average lifetime of 13 years for electric measures installed in 2015. Installing longer-lived measures enabled the Program Administrator to pursue its life cycle targets with measures that achieved lower levels of annual savings, which resulted in lower achievement relative to the Commission's annual goals.

While having different goal structures may help achieve multiple objectives, this example shows that it may also result in efforts to achieve one goal negatively impacting achievement of another. In 2017, Commission staff requested that the Program Evaluator assess the current design of Focus savings goals, based on its own analysis of Focus outcomes as well as its experience with savings goals in other states. The evaluator recommended that the distinction between Commission net savings goals and Program Administrator gross savings goals should be maintained, to "continue to provide the necessary flexibility to manage the portfolio through unforeseen market factors, while encouraging the mitigation of free-ridership via thoughtful

program design."[28] However, the evaluator also noted that the possibility for conflict between achievement of life cycle and annual goals is likely to continue going forward, and therefore recommended that Commission and Program Administrator goals use the same metric. For example, if the Commission wishes to continue emphasizing long-lived energy savings, it would be appropriate to set Commission and Program Administrator goals on a life cycle basis.

Commission Alternatives – Contract Goals

Alternative One is for the Commission to continue the current structure for savings goals, with Commission goals based on net annual savings and Program Administrator contractor goals based on gross life cycle savings. Alternative Two would be for the Commission to set both the Commission net goal and Program Administrator gross goal on a life cycle savings basis, in order to reduce the potential for future conflicts in goal achievement and more directly align the Commission's goals with the Program Administrator's contract incentives.

Alternative One: Commission goals shall continue to be set based on net annual savings and the Program Administrator's goals shall continue to be set based on gross life cycle savings.

Alternative Two: Commission goals shall be set based on net life cycle savings and the Program Administrator's goals shall be set based on gross life cycle savings.

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Key Background Documents
Order (signed 11/9/10 - mld 11/10/10) - PSC REF#: 141173
11-4-10 Minute & memo - PSC REF#: 144537
Order (signed & mld 6/12/09) - PSC REF#: 115210
Order (signed 7/12/12 - mld 7/13/12) - PSC REF#: 168310
Order (signed 2/5/14 - served 2/6/14) - PSC REF#: 198182
Final Decision (signed 9/3/14 - served 9/5/14) - PSC REF#: 215245
Order (signed 2/25/15 - served 2/16/15) - PSC REF#: 232431
12-10-2015 Commission Agenda Memo - PSC REF#: 279042
Order signed and served 12-23-15 - PSC REF#: 279739
Notice of Investigation signed and served 3-24-16 - PSC REF#: 283596
CUB Request to Intervene and Notice of Appearance - PSC REF#: 284108
WPC Request for Intervenor/Party Status - PSC REF#: 284291

[28] Cadmus memorandum to Joe Fontaine, October 25, 2017. (DL: 1625942.)

Follow Up on Quadrennial Planning Process II Issues signed and sent 04-27-2016 - PSC REF#: 285314
Interim Order signed and served 11-3-16 - PSC REF#: 294032
Final Decision signed and served 12-20-16 - PSC REF#: 295733
PSC Letter requesting comments on Scope of Quadrennial Planning Process III - PSC REF#: 330795
Final Decision - 2018 Voluntary Community Conservation Programs signed and served 9/20/2017 - PSC REF#: 331185
9-15-17 Commission Agenda Memo - Integrated Anaerobic Digester Program Awards - PSC REF#: 331231
Final Decision signed and served 9-27-17 - PSC REF#: 331578
Clean Wisconsin Comments on Scope of Quadrennial Planning Process III - PSC REF#: 331811
WIEG Comments on Quadrennial Process III - PSC REF#: 331812
Public Comment by APTIM (Focus on Energy Program Administrator) - PSC REF#: 331813
WE Energies Comments 10-4-17 - PSC REF#: 331815
RENEW Wisconsin Comments on Quad Plan III Scope - PSC REF#: 331816
Public Comment by Seth Nowak/American Council for an Energy-Efficient Economy - PSC REF#: 331817
Final Decision signed and served 10/5/17 - PSC REF#: 331918
Order signed and served 11-6-17 - PSC REF#: 333103
2018 Voluntary Community Conservation Program - PSC REF#: 334362
Amendment 4 to the contract between SEERA and APTIM - PSC REF#: 338759
9501-FE-116_Focus Exchange Rate and Budget v4_0 with CAS comments.pdf - DL: 874021
Biogas RFP Errata II 05.24.17.pdf - DL: 1540941